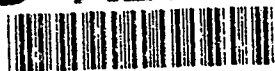


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**THE ACCURACY OF INTELLIGENCE ASSESSMENT:
Bias, Perception, and Judgment in Analysis and Decision**

by

**Alexander P. Butterfield, Jr.
Lieutenant Commander, U.S. Navy**

31 March 1993

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NAVAL WAR COLLEGE
Newport, R.I.

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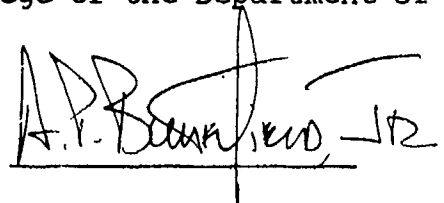
by

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Advanced Research Project of the Center for Naval Warfare Studies.

The contents of this paper reflect my own views and are not necessarily endorsed by the Naval War College or the Department of the Navy.


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Abstract of
**THE ACCURACY OF INTELLIGENCE ASSESSMENT:
Bias, Perception, and Judgment in Analysis and Decision**

This paper examines bias, perception, and judgment in intelligence analysis and decision-making. It asks if the accuracy of intelligence assessments can be improved. An answer is sought at fundamental levels of analysis, where biases influence observation, observations are mediated by preconception, and perceptions pass through the filter of critical judgment. Unintentional human errors in observing, perceiving, and judging are the central issues of this paper. Deliberate distortions of intelligence through political calculation or service parochialism are treated peripherally. A survey of literature leads to the conclusion that analytic bias is inevitable; that intelligence concepts are necessary and dangerous; and that uncertainty ensures a margin of error in assessment. Therefore, efforts to eliminate bias and increase the objectivity of intelligence officers are unproductive. Instead, efforts should focus on the suitability and adaptability of concepts. Intelligence officers can be encouraged to use concepts flexibly by exercising several qualities of critical judgment. These qualities can be mobilized by establishing a practical intelligence ethic--not a code of conduct but an ethical way of thinking that forces analysts and decision-makers to ask the right questions at the right time.

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EXECUTIVE SUMMARY

In November 1941, General Short in Hawaii received a message from Washington that warned him to expect "hostile action" at any time. The message clearly indicated that an attack on U. S. possessions "from without" was anticipated. Short interpreted this message as a warning of sabotage and sought no further clarification. Later in the war, British photo interpreters, searching for the conical launch platforms for the German V-2 rockets, identified tents which they had seen many times before as the launchers. Similarly, there were no sightings of the German experimental Walter boats until the fleet was advised in 1944; afterwards, there were scores of false sightings. In October 1973, when Israeli intelligence officers learned that Soviet advisors had departed Egypt and Syria--a clear war warning--the information was ignored and officials continued to believe that the Arabs were conducting exercises.

What was going on in these cases? Many intelligence failures can only be attributed to unintentional perceptual errors in analysis and decision. Deception, political calculation, and service parochialism all play a role. But psychological errors are the most telling. This paper examines the psychology of intelligence assessment. It asks if the accuracy of assessments can be improved. Are biases inevitable? Can we do anything about analytic preconception? What about the moments of critical judgment between perception

and action? Can intelligence officers and decision-makers consciously improve forecasts of adversary behavior?

The study is based on a survey of literature from several different fields: philosophy of science; psychology of perception; ethics; international relations; foreign policy decision-making; analyses of surprise and intelligence failure; and wartime memoirs of intelligence operations. The research is synthesized using a novel framework. Three increasingly more sophisticated levels of intelligence assessment are considered in turn:

- The first level concerns "seeing and observing," or drawing analytic inferences from raw intelligence reporting. Here, the problem of bias is explored;

- The second level considers "observing and believing," or the mediation of observations by the beliefs and expectations of intelligence analysts. Perception and misperception are the central issues on this level;

- The third level focuses on "believing and thinking," or filtering perceptions through the screen of reason in the moments before decision. The matter of judgment and ethical thinking are the subjects of this discussion.

The three levels have very little to do with intelligence in practice. However, they shed light on some puzzling intelligence problems and dilemmas that are usually concealed in the busy routine of analysis and decision. These hidden problems are significant causes of intelligence error. Making them explicit serves three primary purposes:

- Identifying problems that can be solved; channeling efforts to improve the quality and accuracy of assessment to the most productive areas;

- Revealing analytic strengths and weaknesses to those who may underestimate or overestimate the powers of intelligence;
- Encouraging awareness, thoughtfulness, and honest introspection among intelligence officers and decision-makers.

Conclusions are drawn from the following exposition:

Seeing and Observing (Bias)

Every intelligence report contains subjective inferences. Yet the conventional view is that intelligence aims at objectivity. Since the 1950's, the intelligence community has employed scientific methods to eliminate bias and increase analytic objectivity. The view that intelligence should describe objective reality has had several harmful effects. It has opened a rift between presumably unbiased intelligence and biased policy, between supposedly impartial intelligence officers and partial operators, and between the hard facts of capability and the soft assumptions of intention. The result is that intelligence loses political and operational relevance and the meaningfulness that intentions impart to capabilities.

The scientific view is unproductive in light of the many implicit and explicit biases that distort intelligence during collection, analysis, and reporting. Bias is implied in selecting facts for analysis, in the engineering of our collection equipment, and even in the language we use to describe our adversaries. Even if deliberate biases are separated from unintentional biases--distinguishing between

those that might be reduced through sanction and those more fundamentally a part of the analytic process--we must still conclude that there is no such thing as objective intelligence. Thus, we should look for improvements at higher levels of analysis. One is the use of concepts about adversaries to interpret observations.

Observing and Believing (Perception)

Intelligence officers need theories or concepts about potential adversaries for interpretation. However, since concepts are built from many inherently biased reports, they too contain an inevitable margin of error. In psychological terms, beliefs and expectations about potential adversaries are developed from unique experiences, conventional wisdom, and historical lessons. Thus, beliefs and the preconceptions they engender are prone to error. This poses an analytical problem: When weighing data that conflicts with an intelligence concept, which has priority? In intelligence, concepts generally prevail over conflicting reports. This is so for three reasons:

- Intelligence is ambiguous, allowing several interpretations that accord with the established concept;
- Contradictory reports cannot be tested to confirm validity;
- Intelligence concepts are rooted in a complex psychology of beliefs, interests, fears, and desires.

In assimilating data to pre-existing beliefs and

expectations, intelligence officers misperceive. Information that contradicts a preconception may be ignored or overlooked. Data might be distorted to conform with preconception. Distortion takes many forms:

- Misunderstanding otherwise clear signals;
- Subconsciously undermining the validity of the conflicting data or the veracity of the source;
- Selectively searching for additional data to bolster belief against discrepancies or to devalue discrepancies against belief.

These mechanisms are highlighted in several examples of misperception from World War II, Vietnam, and the warning phase of the Arab-Israeli War of 1973.

One reason for the abundance of wartime examples of misperception is that crisis increases ambiguity. As ambiguity increases, preconceptions stiffen to simplify decision-making.

The interrelated problems of bias, preconception, and ambiguity have frustrated conventional attempts to improve the accuracy of intelligence. The advantages and disadvantages of several scientific and bureaucratic solutions are reviewed. Scientific reforms that seek to quantify analysis and decision-making only impose an artificial order on an inherently disorderly process. Bureaucratic reforms involve significant trade-offs. For example, encouraging multiple viewpoints by decentralizing the intelligence community loosens the hold of preconception but tightens the grip of

ambiguity.

These dilemmas suggest that intelligence failures are inevitable. Adversaries are complex, reacting subjects. Collection and analysis obey our expectations. Facts are marshalled with distorting preconceptions. Ambiguity guarantees a certain threshold of error. Moreover, the chances of error have increased with greater distance from the battlefield, higher levels of technology, and added layers of bureaucracy. Misperception in intelligence assessment seems to be part of both the human and the modern condition.

Believing and Thinking (Judgment)

It may be possible to incrementally increase the accuracy of assessment by asking less conventional questions. Instead of asking how to eliminate bias and preconception, we should ask which biases are best, which concepts are right, for any given situation. After all, intelligence aims at success, not the truth. Intelligence officers should be conditioned to move dynamically among concepts, discarding one and selecting another as conditions change. To illustrate the need for "concept flexibility," a model for analysis at the operational level is constructed. Three analytic variables are important here:

- The degree of ambiguity;
- Relative tolerances for intelligence error;
- Varying requirements for sensitivity to change.

These variables change according to both the level of analysis and the level of conflict. As one moves from the tactical to the strategic level of analysis, ambiguity increases. Also, since errors in tactical analysis are less consequential than strategic errors, the tolerance for error decreases. As conditions escalate from peace to war, tolerance for error increases because the possibility of surprise decreases and the threshold of acceptable risk rises. Similarly, as tensions increase, the need for intelligence to anticipate an increasing number of deviations from the norm (the rate of change) also increases.

With these variables in one configuration, a particular intelligence concept may be the best guide to forecasting the behavior of an adversary. In another configuration, the same concept loses its usefulness and must be discarded. For example, at the operational level of analysis, where strategic concepts are brought together with tactical reporting, at least three models can be employed:

- In static, peacetime conditions (low tolerance for error and rate of change), analysts should favor strategic concepts over discrete tactical indications, until the weight of contradictory evidence is overwhelming (see Figure 1);

- As tensions rise during crises (medium tolerance for error and rate of change), conflicting tactical indicators should be favored over strategic concepts (see Figure 2);

- During war (high tolerance for error and rate of change), tactical indicators should generate several free hypotheses, which are refined by subsequent indications until a working hypothesis is selected (see Figure 3).

There is only one way to condition intelligence officers and decision-makers to use concepts flexibly. Since it is not possible to escape the hold of bias and preconception, efforts should focus on the exercise of critical judgment in the moments between perception and action. Five qualities of critical judgment are described:

- Full awareness of the inherent limits of intelligence;
- Explicitness of assumptions and procedures;
- Deliberate analytic self-consciousness;
- Intuition supported by knowledge;
- Honesty and integrity in analysis and in the relationship between intelligence advisors and decision-makers.

These qualities must be mobilized on a broad front by establishing a solid professional ethic. This ethic must hold up under pressure in the real world. Thus, it must be an active ethic rather than a code of conduct. It must be an ethical way of thinking that forces analysts to ask the right questions at the right time.

These conclusions suggest several recommendations:

- Redirect efforts to improve the quality and accuracy of intelligence assessments from eliminating bias and preconception to promoting values of critical judgment in analysts and decision-makers;
- Promote values of critical judgment by establishing a professional ethic of right questions, not right conduct;
- Survey medical schools and teaching hospitals for non-academic criteria used in selecting interns for residencies in clinical medicine; investigate the applicability of criteria in selecting and screening intelligence officers;

- Supplement conventional intelligence training for military commanders (war colleges, PCO schools, advanced warfare courses, and pre-deployment programs) with a 1-2 hour seminar on the limits of analysis and decision;

- Teach analytic "core values" in traditional training programs for intelligence officers.

TABLE OF CONTENTS

| CHAPTER | | PAGE |
|---------|---|------|
| | ABSTRACT | ii |
| | EXECUTIVE SUMMARY..... | iii |
| | LIST OF ILLUSTRATIONS..... | xiii |
| I | INTRODUCTION | 1 |
| II | SEEING AND OBSERVING (Bias)..... | 13 |
| | When Seeing Was Believing..... | 13 |
| | The Truth in Intelligence..... | 15 |
| | Biases Implicit and Explicit..... | 22 |
| | Crimes and Misdemeanors..... | 26 |
| | Fooling Ourselves..... | 30 |
| III | OBSERVING AND BELIEVING (Perception)..... | 37 |
| | Kennan and Kenge..... | 39 |
| | The Persistence of Concepts..... | 47 |
| | Crisis and Ambiguity..... | 51 |
| | Dilemmas of Analysis and Decision..... | 53 |
| IV | BELIEVING AND THINKING (Judgment)..... | 66 |
| | Suitability and Adaptability..... | 66 |
| | At the Operational Level..... | 69 |
| | The Matter of Judgment..... | 75 |
| V | CONCLUSION..... | 91 |
| | BIBLIOGRAPHY..... | 95 |

LIST OF ILLUSTRATIONS

| FIGURE | PAGE |
|---|------|
| 1. Operational Intelligence Decision-Making: Peacetime (Low Tolerance for Error, Low Rate of Change)..... | 72 |
| 2. Operational Intelligence Decision-Making: Heightened Tensions (Medium Tolerance for Error, Medium Rate of Change)..... | 73 |
| 3. Operational Intelligence Decision-Making: Wartime (High Tolerance for Error, High Rate of Change)..... | 74 |

THE ACCURACY OF INTELLIGENCE ASSESSMENT

CHAPTER I

INTRODUCTION

By September 1941, the Army and Navy had comprehensive intelligence suggesting that the Japanese were preparing for war in the Pacific Theater. Service intelligence agencies were receiving MAGIC intercepts of Japanese political and diplomatic traffic, and U.S. agents were deployed throughout the theater. On September 24th, Tokyo cabled an agent in Honolulu, requesting a five-sector reference grid of Pearl Harbor and the locations of all carriers, battleships, and destroyers. The Japanese were particularly interested in piers at which more than one ship was berthed. When the message was decoded on October 9th, the head of the Office of Naval Intelligence, Captain Wilkerson, attributed to it no great importance. He interpreted the message as indicative only of "...the 'nicety' of Japanese intelligence, the incredible zeal and efficiency with which they collected detail." The decoded report was not forwarded to Admiral Kimmel at Pearl Harbor, and Admiral Stark dismissed it as insignificant.¹

What was going on here? As Roberta Wohlstetter has pointed out, it was not for lack of information that we were surprised at Pearl Harbor. Captain Wilkerson was an honest man with a distinguished career.² The several politicians and

military leaders who were privy to MAGIC intelligence were not deliberately trying to desensitize the U.S. to war warnings. No, many intelligence failures can only be attributed to unintentional errors in human perception. This paper examines those perceptual processes. It asks if perceptual errors can be reduced. Can the quality and accuracy of intelligence assessment be improved?

An answer is sought on three levels of analysis and decision-making. The first level is the handling of raw data by intelligence analysts. Here, the central problem is bias. The next level is the mediation of analytic observations by intelligence theories and concepts. Here, the central problem is preconception. The third level is the way analysts and intelligence advisors use concepts in the realm of thought between perception and action. Here, the central issue is critical judgment. Of the three, the last level appears the most promising. But qualities of critical judgment cannot be mobilized on a broad front without the establishment of a solid professional ethic--an ethical way of thinking and questioning, not a code of conduct.

My interest goes back both to college and more recent work as a naval intelligence officer. As a student, I frequently served as a subject for research. During one experiment, I was wired to a heart-rate monitor and galvanic skin response meter to measure, I was told, my responses to some suggestive photographs. I could see that the "responses"

varied in intensity from photograph to photograph. However, they were in fact externally manipulated without my knowledge. Later, when I was asked to rate the photographs, my preferences corresponded almost exactly to the unreal level of "excitement."³

This was a simple but convincing lesson that the head can rule the heart, that expectations modulate desires, and that biased signals influence cognition and judgment. It showed me that many perceptual barriers stand between real events and our understanding of events--an issue, as it turns out, of great importance to any working intelligence officer.

My academic interest began with the realization that language shapes our perceptions, that not only do we label the world around us but that those labels themselves structure our perceptions. Wilhelm von Humboldt expressed this proposition in 1848 as "man lives in the world about him principally, indeed exclusively, as language presents it."⁴ The modern articulation was made in the 1920's by cultural anthropologists Edward Sapir and Benjamin Whorf. Sapir maintained that "meanings are not so much discovered in experience as imposed upon it, because of the tyrannical hold that linguistic form has upon our orientation to the world."⁵ Whorf, who studied the language of Hopi Indians, found that its lack of tenses, classification of events by duration, and grammatical forms attributing validity to the spoken narrative contributed to the Hopi view of reality as timeless,

ahistoric, and based on the duration and certainty of events rather than their place in time.⁶ For example, short duration events like lightning and meteor could only be verbs, and different forms were used to distinguish between a more valid fact from current observation and a less valid fact from memory.

All this may tantalize an undergraduate, but what has it to do with the serious business of intelligence? In 1986, I was serving as Soviet Submarine Analyst in the Fleet Ocean Surveillance Information Center (FOSIC) at CINCUSNAVEUR in London. This was a windowless warren of desks, noisy with teleprinters, and always smelling of last night's fast food. At its core was a 24-hour watch "floor" which included a map display showing estimated positions of Soviet and other Warsaw Pact shipping. This was surrounded by analysts' desks, where the various chapters of each day's "story" were knit together from raw data, for a daily briefing for senior military commanders, periodic spot reports, and an afternoon summary message.

I noticed that the intelligence plot begins to assume a reality of its own. During a crisis, it is sometimes difficult to separate the real action from the action "manufactured" by the intelligence center. One tends to get caught up in the "truth" of the technological representation. Unless the analyst is continually aware of his biases, he may substitute this two-dimensional artifice for the three-

dimensional arena of real action. (Occasionally, a unit described in reports as having "probably returned to port" had only fallen off the map after losing magnetism. More than one seagoing commander has questioned the sanity of his intelligence support after receiving a well-intentioned product of this manufactured reality.)

The intelligence center in London was housed in Eisenhower's World War II headquarters. A few blocks from there was the Royal Navy's Operational Intelligence Center (OIC) in "the Citadel" at Whitehall. There, Commander Rodger Winn presided over the U-Boat tracking room. Faced with highly uncertain and ambiguous information, but with much on the line, Winn devised what he called a "working fiction" as a tracking method. As Winn later put it, "What could only be an estimate and a guess was to be taken as a fact and acted upon."⁷ In other words, this "working fiction"--which, due to Winn's brilliance and keen intuition, was more often right than wrong--was taken as real for decision-making. Did Winn borrow from Sherlock Holmes, who invented "fanciful explanations" in the absence of hard facts as a way of testing new evidence?⁸

The Germans also exercised a form of these map room fictions. The U-Boat Command maintained a display of U-Boat positions as the British might have plotted them. These were called "appreciations in the first and second degree."⁹ Similarly, it is said that Hitler was "often inspired at the

map table by the pictorial [and unreal] glimpse of opportunity."¹⁰ His many failures to appreciate the actual situation at the front are certainly owed to a larger pathology, but his tendency to believe the two-dimensional and insular "reality" of his map room was almost certainly a contributing factor.

My experiences as an intelligence officer in London led me back to the same questions I had asked as a student: What are the barriers that stand between events and our perception of events? Can we increase the accuracy of our perceptions by breaking down those structures? The literature bearing on the question is vast. Since the late 1940's, social scientists have tested social and psychological hypotheses about foreign affairs and international relations, creating a considerable body of literature on the "psychology" of international relations--psychological factors in conflict resolution, strategic deterrence, and the like.¹¹ In the course of these investigations, researchers have addressed the mysteries of intelligence.

A related body of literature has been produced by psychologists and political scientists in the wake of dramatic strategic surprise. Such surprises as Pearl Harbor, Barbarossa, and the Arab attack on Israel in 1973, spawned scholarly considerations of intelligence failure--from the role of misperception in strategic failure,¹² to studies of strategic and operational deception,¹³ to examinations of the

flawed organizational dynamics of secret societies,¹⁴ to the considerable influence of policy biases on intelligence assessment.¹⁵ But very few actual practitioners of intelligence have undertaken serious studies of the processes at work in their profession, except for the odd overview,¹⁶ a few notable memoirs,¹⁷ and the occasional monograph from the Olympian perspective of the Director of Central Intelligence.¹⁸

I have drawn from this literature in preparing this paper. However, much of it falls outside the scope of this investigation. Of course, perceptual problems are not the only causes of intelligence failure. Intelligence contends with uncooperative subjects, who conceal behavior through secrecy and deception. Overt political pressure may distort intelligence just as surely as analytic bias and preconception. Military intelligence officers may deliberately bow to service interests and careerism. Barriers to analytic accuracy are either perceptual or "structural."¹⁹ Structural barriers are posed by organizations and bureaucracies. Hierarchy, centralization, and specialization may distort intelligence and amplify political pressures. Structural problems are different from the problems of perception that are central to this paper. They are typically problems of perspective. Second, they stem from professional or bureaucratic interests. Finally, the distortion of intelligence through structural factors is often deliberate,

where this paper is concerned with unintentional problems. Structural factors are addressed only when they bear directly on the perceptions of analysts and intelligence advisors.

Some critics believe that the role of perception in intelligence failure is over-rated. Some maintain that there is too much variance in international relations for improvements in the accuracy of intelligence to make much of a difference in peace or war. As Walter Laqueur has observed, the Israelis and Palestinians want the same territory; theirs is a genuine conflict, not a cognitive problem.²⁰ Yet, in intelligence, perception is consistently decisive. Intelligence is a thinking game. All is gambled on the intelligence officer's perception and judgment. The Senate Armed Services Committee blamed the failure to warn earlier of the Soviet build-up in Cuba in 1962 on "...a preconception about Soviet behavior."²¹ In 1980, the Chairman of the House Select Committee on Intelligence, pointed to preconception as the chief cause of intelligence failure.²² The Arab-Israeli conflict is not a "cognitive problem," but misperception of the intelligence facts available to Israeli intelligence officers in October 1973 led directly to a failure of warning that almost lost a state.

Although the problem of misperception in intelligence assessment is a complex subject--one that is neither susceptible to the logic of military thinking nor vulnerable to pragmatic solutions--upon it has turned much of importance

in military affairs. Peeling back the layers of analysis and decision sheds light on hidden problems in intelligence. Making explicit the processes that lead to error is likely to encourage self-consciousness in both analysis and in the relationship between the intelligence officer and the decision-maker. In so doing, it may be possible to improve the honesty and integrity of the assessments upon which strategic and operational decisions are made. A close examination of bias, preconception, and judgment is also likely to give potential users of intelligence a better appreciation for the strengths and weaknesses of analysis-- particularly military officers, who often either underestimate or overestimate the power of "truth" in intelligence and "the power to speak truth to power."²³

Notes

1. Roberta Wohlstetter, Pearl Harbor: Warning and Decision (Stanford: Stanford University Press, 1962), p. 390.
2. Ibid.
3. To my knowledge, this research at Duke University's Department of Psychology, 1970-1971, was unpublished. However, it is typical of several published studies reviewed in Robert Jervis, Perception and Misperception in International Politics (Princeton: Princeton University Press, 1976) and Martha Cottam, Foreign Policy Decision-Making: The Influence of Cognition (Boulder: Westview Press, 1986), among others.
4. Quoted in J.A. Fishman, "A Systematization of the Whorfian Hypothesis," Behavioral Science, v. 5, 1960, p. 324.
5. Ibid., p. 331.
6. Ibid., pp. 332-333. Also see Benjamin Lee Whorf, "Science and Linguistics," Technology Review, v. 44, 1940, pp. 229-248.
7. Rodger Winn, quoted in Donald McLachlan, Room 39: A Study in Naval Intelligence (New York: Athenum, 1968), p. 115. Winn's "working fiction" is also described in Patrick Beesly, Very Special Intelligence (New York: Doubleday and Company, 1978), p. 160.
8. Walter Laqueur, A World of Secrets: The Uses and Limits of Intelligence (New York: Basic Books, 1985), p. 299.
9. Karl Doenitz, Memoirs: Ten Years and Twenty Days (London: George Weidenfeld and Nicolson, 1959), p. 317.
10. John Keegan, The Second World War (New York: Viking, 1990), p. 402.
11. See, for example, Alexander L. George and Richard Smoke, Deterrence in American Foreign Policy: Theory and Practice (New York: Columbia University Press, 1974). An excellent review of this literature can be found in Ole Holsti, "Foreign Policy Formation Viewed Cognitively," in Robert Axelrod, ed., Structure of Decision: The Cognitive Maps of Political Elites (Princeton: Princeton University Press, 1976), pp. 18-54.

12. See, for example, Wohlstetter, Warning and Decision; Barton Whaley, Codeword Barbarossa (Cambridge: MIT Press, 1973); and Avi Schlaim, "Failures in National Intelligence Estimates: The Case of the Yom Kippur War," World Politics, April 1976, pp. 348-380.

13. See Michael I. Handel, ed., Strategic and Operational Deception in the Second World War (London: F. Cass, 1987). An interesting case history is found in David Irving, The Mare's Nest (Boston: Little Brown, 1964). A useful review of the literature can be found in Richards J. Heuer, "Strategic Deception: A Psychological Perspective," International Studies Quarterly, June 1981, pp. 294-327.

14. The classic work is by Harold Wilensky, Organizational Intelligence (New York: Basic Books, 1967).

15. Examples of the abundant literature on the policy-intelligence interface include Ray Cline, "Policy Without Intelligence," Foreign Policy, Winter 1974-1975, pp. 132-133; Harry Howe Ransom, "Strategic Intelligence and Foreign Policy," World Politics, October 1974, p. 145; Yehoshafat Harkabi, "The Intelligence-Policy-Maker Tangle," The Jerusalem Quarterly, Winter 1984, pp. 125-131; Robert M. Gates, "Guarding Against Politicization," Studies in Intelligence, Spring 1992, pp. 1-9; and L. Keith Gardiner, "Squaring the Circle: Dealing with Intelligence-Policy Breakdowns," Intelligence and National Security, v. 6, 1991, pp. 141-153.

16. Such as Alan Dulles, The Craft of Intelligence (New York: Signet, 1963).

17. See, for example, Beesly, Very Special Intelligence and McLachlan, Room 39.

18. In addition to FN 15 above, typical are Robert Gates, "The CIA and American Foreign Policy," Foreign Affairs, Winter 1987, pp. 215-230, and George A. Carver, "Intelligence in the Age of Glasnost," Foreign Affairs, Summer 1990, pp. 147-166.

19. The term is used in Richard K. Betts, "Analysis, War, and Decision: Why Intelligence Failures Are Inevitable," World Politics, October 1978, p. 67.

20. Laqueur, A World of Secrets, p. 276.

21. Klaus Knorr, "Failures in National Intelligence Estimates: The Case of the Cuban Missiles," World Politics, April 1967, p. 457, quoting U.S. Congress, Senate, Committee on Armed Services, Preparedness Investigating Subcommittee, Investigation of the Preparedness Program: Interim Report on

the Cuban Military Buildup (Stennis Report), Staff Report (Washington: U.S. Govt. Print. Off., 1963), pp. 2-11.

22. Les Aspin, "Debate Over U.S. Strategic Forecasts: A Mixed Record," Strategic Review, Summer 1980, pp. 29-43, as cited in John Prados, The Soviet Estimate: U.S. Intelligence Analysis and Soviet Military Strength (New York: The Dial Press, 1982), p. 295.

23. Thomas L. Hughes, "The Power to Speak and the Power to Listen," in Thomas M. Frank and Edward Weisband, eds., Secrecy and Foreign Policy (New York: Oxford University Press, 1974), p. 14.

CHAPTER II

SEEING AND OBSERVING (Bias)

It is so much easier to assume than to prove; it is so much less painful to believe than to doubt; there is such a charm in the repose of prejudice, when no discordant voice jars upon the harmony of belief.¹

During the late days of the Second World War, British imagery interpreters were hunting for German V-2 launch sites. After they were advised that the rockets were launched from a "steel cone surrounded by a square framework," the analysts quickly identified "12 large conical objects, 15 feet in diameter" as the launching platforms. "When the objects later disappeared and the analysts calculated that they could not have been lifted over the surrounding wall or taken out through the narrow gap in it, they correctly realized that the 'conical objects' were standard tents, which they had seen many times before, which had been folded up and removed."² This was not a simple mistake by just one or two interpreters. It was a general perception. The analysts were good men, trying their best. Only unintentional bias explains these misperceptions. More is going on here than meets the eye. Here, seeing was influenced by the analysts' subjective expectations.

When Seeing Was Believing

Clausewitz wrote that "this difficulty of accurate

recognition constitutes one of the most serious sources of friction in war...."³ He was referring to the mists that cloud the commander's vision of the battlefield. A clear view of the battlefield was a decisive operational advantage in Clausewitz's day. The commander pitched his tent on the rise that offered the best prospect of the likely scene of action. Where he could not see directly, he would deploy lieutenants to see for him. What was seen could be trusted; what was not seen was doubtful. The report of enemy dispositions before the battle could be an adversary's ruse or a messenger's betrayal. He relied on his senses and his sound judgment above all else.

Seeing was the benchmark of operational truth in the closely observed wars of the 18th and 19th centuries. Appreciation of the battlefield went a long way towards resolving the problem of "accurate recognition." Because seeing was believing, Clausewitz attached great importance to coup d'oeil while he placed little faith in the usefulness of intelligence.⁴

Today, technology has removed the commander's tent from its hill above the battlefield. Mists of a different kind cloud his vision. The battle is observed from a great distance through a digital display, a third-hand radio report. The modern commander is at the mercy of everything interposed between his command center and actual sight of the enemy. His distance dictates that everything about the enemy is observed

and thus contains a subjective interest.⁵

The Truth in Intelligence

Yet, the idea that "intelligence consists of unvarnished facts induced by unbiased observation" is conventional today.⁶ Above the entrance to Central Intelligence Agency (CIA) headquarters are chiseled the words, "And ye shall know the truth and the truth shall make you free."⁷ The verse expresses this view that there are absolute truths about our adversaries, and that these truths will be revealed if we collect and analyze enough facts. As Thomas Hughes puts it, "Intelligence should flourish in its protected sanctuary, its state within a state, fortified by its privileges of detachment, embedded in the hard rock of undaunted objectivity."⁸

This quest for intelligence truths is like the scientist's search for the fundamental laws of nature. On the road to the truth stand many barriers, some "objective," such as complexity and the limits of insight, others "subjective," such as institutional or perceptual biases. Objective barriers can be scaled by accumulating enough facts, subjectives barriers by eliminating bias. So, according to this view, intelligence failures, like scientific failures, are caused by insufficient facts or biased observers.

After World War II, facing Cold War uncertainties, the new intelligence establishment, sought to "transform

[intelligence] from folklore to science."⁹ Decision-making techniques were borrowed from social psychology, management methods from operations research, mathematical models from game theory, and general systems models from biology.¹⁰

The view of intelligence as a social science was embraced by the intelligence community in the 1960's and spawned a behavioral science revolution at CIA in the 1970's.¹¹ It persists to this day.¹² Robert Gates addressed CIA's analysts soon after his confirmation as Director with these words:

Truth, insofar as we know it, is what our work is all about....And because seeking truth is what we are all about as an institution, as professionals, and as individuals, the possibility--even the perception--that that quest might be tainted deeply troubles us, as it long has and as it should.¹³

The CIA Director was sending his analysts out to that hill overlooking the battlefield, where all is seen and nothing observed in perfect scientific contemplation of the pure facts.

The "scientificization" of intelligence has had significant effects. It has opened a deep rift between presumably unbiased intelligence and biased policy, between supposedly impartial intelligence officers and partial military operators, and between the hard facts of capability and the soft assumptions of intention.

Intelligence and Policy. The first of these effects has been described by Benno Wasserman as "the creation of a false distinction between intelligence and policy as separate

skills."¹⁴ The idea that intelligence officers possess unbiased facts while decision-makers hold knowledge informed by policy presumes that facts exist in a pristine state apart from knowledge.¹⁵ In this view, intelligence is handed to decision-makers, who then assault it with their many biases.

As it happens, the facts are mugged long before they reach decision-makers. There are simply too many facts for random selection by intelligence officers. They must ask which facts qualify to be given as the cause of the intelligence event.¹⁶ They order, structure, and provide context. "All intelligence presupposes some sort of policy problem or frame of reference," wrote Wasserman, "for the collection of information without some sort of purpose or point of reference would be inconceivable."¹⁷ Intelligence officers attribute some "political" importance to facts in the process of selection. This ensures that no intelligence arrives on the desk of any decision-maker without expressing a point of view. Thomas Hughes puts it this way:

All the choices made by the...[intelligence officer], starting with his selection of the absurd options to be discarded and the plausible options to be included, involve exercises in hidden estimating. In his subsequent argumentation, in the logical layout of the rationale underlying the options he selects as serious, he will often meddle with the weights and measures attached to previously estimated material.¹⁸

That intelligence officers may be exercising "political" skills has not upset the conventional view of intelligence as

a science. But the distinction between unbiased intelligence and biased policy is an underlying cause of error. As Benno Wasserman explains:

The governmental theory of intelligence and knowledge places major emphasis on the accumulation of details and the avoidance of bias, and neglects intellectual speculation and evaluation and critical testing and measuring. It is the neglect of these latter factors that accounts for the failure of the policy and intelligence functions.¹⁹

Intelligence and Operations. In the same way, intelligence has been separated from military operations and plans. Several cases of keeping "unbiased" intelligence distanced from "informed" operations are related by Donald McLachlan in his memoir of the British Admiralty's intelligence staff during World War II, Room 39. Students at the military staff colleges in the 1920's and 1930's were encouraged not to select one enemy course of action as more likely than another on the premise "that such a choice would give a wishful slant to the students' thinking about the action to be taken by his own [service's] forces." This thinking found its way into the Admiralty in the late 1930's. The Admiralty's Director of Plans, not the Director of Naval Intelligence (DNI), constructed the informed appreciation of the enemy situation:

DNI was asked to give the Director of Plans all available information, leaving it to the Planners to draw all deductions. What the latter had not taken into account was the possibility that the DNI might have available in wartime information so detailed

and conclusive...that to leave him out of the final assessment would be somewhat absurd.²⁰

While the false distinction broke down during the war, General Eisenhower's staff continued the policy of not mixing intelligence estimates with operational decisions for three years after the British abandoned the idea.²¹ Similarly, the U.S. Director of War Plans, Admiral Turner, dominated a weak Office of Naval Intelligence, refusing to let the DNI estimate intentions; Field Marshall Montgomery kept his operational planners at arm's length from his intelligence staff; and Lord Mountbatten insisted on separation for the reason that "the intelligence staff might be tempted to give their contribution a bias...inspired by their own view of what should be done."²²

The military staffs of the Second World War should have learned from Jellicoe's poor intelligence support during Jutland. In that case, Captain Jackson of the Admiralty's Operations Division asked the Intelligence Division (Room 40) for the location of a callsign ("DK") associated with the German Fleet flagship, learning that the callsign was at its home base. Since it was the role of intelligence to provide raw data and the role of operations to interpret the data, Jackson did not ask and was not told that the callsign remained at home base during operational sorties. As a result, Jackson gave Jellicoe false intelligence that the German Fleet remained in port several hours after it had actually sailed.²³

Capabilities and Intentions. Another effect of pushing intelligence down the road of science is the tendency to view quantifiable capabilities as more accurate and often more important than qualitative intentions. Analysts resort to "bean counting" as a more scientific index than estimating intentions. Although there may be good reasons for counting beans in arms races, where numbers are statements of national will and purpose, "beans" must be linked to intentions.²⁴

Numbers alone can lie. In his bitter critique of defense intelligence during the Vietnam era, Patrick McGarvey recalls how the Air Force was interested in intelligence showing low rates of North Vietnamese infiltration down the Ho Chi Minh Trail to demonstrate bombing effectiveness, while the Army was interested in high rates to justify U.S. troop increases. The resulting "intelligence" from DIA was meaningless and misleading. Here is a sample: "Enemy infiltration continued at a higher rate than last month. However, the cumulative effect of U.S. bombing has seriously degraded his ability to mount a large-scale offensive." As McGarvey put it, "Never mind if mounting a large-scale offensive is what the enemy had in mind."²⁵

Williamson Murray suggests that "...even in counting beans, bureaucracies exhibit a willful and natural ability to count the beans so as to fix the result in accordance with preconceived notions." In a 1938 evaluation of comparative naval strength, the British Chiefs of Staff counted three

German "pocket battleships" as more formidable regular battleships, included a German battle cruiser that would not be combat ready until 1939, and added in to the German operational order of battle two Italian battleships in overhaul, while not including three British ships undergoing similar repairs.²⁶

Finally, quantities may be just as ambiguous as qualities. For example, civilian and military decision-makers often prefer the certainties of current intelligence over the ambiguities of finished intelligence. However, in sufficient volume, current intelligence is also uncertain, as Thomas Hughes explains:

...the drumfire of current intelligence confronts policy-makers psychologically either with excessive warnings or disheartening details. The result is often an overloading of the vessels of current intelligence, submerging the Plimsoll line with the heavy freight of alarms and irrelevancies....The sheer quantity of raw data, far from regulating the choices, reducing the irrationalities, or promoting the priorities, may have the opposite result: actually widening the possibilities of choice, arming the inclinations of bias, enlarging the room for intuition, and promoting the play of the accidental and the unconscious.²⁷

Capabilities can hardly be estimated without imputing intentions; quantities in intelligence are bound to qualities. Why, for instance, are the military capabilities of Great Britain not weighed against us in war plans and defense programming? What of Russia's capability to disarm unilaterally?²⁸ Intention is estimated in nearly every

assessment of capability.

Moving intelligence in the direction of science has increasingly isolated it from the arts that give it meaning. The pretension of objectivity lets the intelligence community in for the same criticism that Mannheim leveled at the social sciences: "They aim in the first place at being exact, and only in the second place at conveying the knowledge of things."²⁹

Biases Implicit and Explicit

Collection. Since intelligence may collect any number of facts, anywhere in the world, the intention to collect expresses a biased interest. In requesting a picture of a Russian submarine or in asking a question during prisoner interrogation, the same degree of bias is introduced as when Secretary of Defense Rumsfeld emphasized the number of ships (Soviet advantage) in assessing naval balance, while Les Aspin, then a Congressional critic of the Pentagon budget, focused on total tonnage (U.S. advantage).³⁰

Collection also influences adversary behavior.³¹ Uri Ra'anani has termed this bias "the Heisenberg phenomenon," after the physical principle that observers introduce uncertainty in the observation of elemental particles. If we detect traces of an enemy's preparations to attack and thus increase our readiness, the enemy may detect our heightened readiness posture and, fearing that surprise has been

precluded, cancel his attack.³²

Intelligence is also biased by collection technology. Satellites are engineered with an expectation of what they will reveal. As Thomas Kuhn has observed, "The decision to employ a particular piece of apparatus and to use it in a particular way carries an assumption that only certain sorts of circumstances will arise." He calls these "instrumental expectations."³³ Although collection technology is indispensable, its biases must be taken into account, particularly during periods of great change such as we recently witnessed in Eastern Europe and the former Soviet Union. As Robert Jervis has pointed out, technological biases may prevent us from detecting completely new and unexpected events.³⁴

Analysis. During analysis, intelligence is further biased by the way analysts feel, believe, and think. British intelligence on the number of divisions the French could maintain in the field was comparatively low during the late 1930's, "...until British foreign policy underwent a fundamental change toward increasing reliance on France in early 1939."³⁵ Conventional wisdom may rule irrationally over contradictory intelligence. When the head of Army Intelligence in Hawaii received warning that the Japanese were destroying their peacetime codes, he simply ignored the report as it was inconsistent with his beliefs and expectations.³⁶

During both analysis and decision, intelligence is

subjected to implicit and explicit institutional pressures. Intelligence may be biased to achieve consensus, to reflect service interests, or to support a cherished policy. An illustration is provided in Thomas Hughes' recollection of the sudden shelling of Danang during the U.S. Presidential campaign in 1968:

Minutes after the event was reported, it began to register in Saigon and Hanoi, Paris and Peking, Moscow and Washington. In America, it registered throughout all the environments of our democracy: from the Joint Chiefs of Staff to the editorial offices of The New Republic....Inside the White House, the State Department, and the Pentagon, different receivers also received the news within different frames of reference. Impact varied with perception, but the marriage of fact and viewpoint was occurring. These personal receivers reacted to the same fact at Danang, saw it from their differing perspectives, absorbed it into their own value systems, incorporated it into their varying viewpoints and turned it often into competitive conclusions. Some embraced, some acquiesced, some ignored, some rejected. Absolutist notions about facts and their meanings tended to dissolve in this process.³⁷

Reporting. Once intelligence is collected and analyzed, it must be reported. The structure and vocabulary of language contain biases that reflect past experiences, learning, ethnicity, and other elements of cultural heritage that may even shape perception.³⁸ Robert Jervis provides an example of what he terms "the impact of categorization" from Arthur Marder's comprehensive naval history of World War I, From the Dreadnought to Scapa Flow. It is worth recounting in some detail:

The label placed on an event influences the way it is seen....labeling represents an opinion about the nature of objects. But, once made, this choice encourages the person to see further resemblances between the object and others in the same category. So, once the offensive-minded British navy thought of the convoying of merchantmen in World War I as a defensive measure, "it was grouped with the arming of merchant ships, the use of smoke apparatus,... defense gear against mines, and other measures and devices. Convoy was contrasted, to its disadvantage, with the 'offensive' side of the [antisubmarine] war." This categorization may have rested initially on the belief that convoys at best only protected the ships in them without facilitating the destruction of submarines. But it also inhibited analysts, even those who favored the system, from seeing that the convoys, by drawing enemy submarines to the escorts, would in fact destroy more submarines than would "offensive" tactics such as patrolling.³⁹

The language of intelligence has its own conventions. A CIA study of the accuracy and effectiveness of intelligence communications found that decision-makers attached numerical odds ranging from 50 to 95 percent to the estimative word "probably."⁴⁰ Glen Snyder and Paul Diesing, in a content analysis of European diplomatic traffic in the days leading to the outbreak of World War I, found that 51 percent (181) of the messages were misinterpreted. While it is impossible to determine which misperceptions were caused by the distorting conventions of language, the authors conclude that the subjects' expectations and desires were read into roughly half of the misperceived messages.⁴¹

As Thomas Kuhn has suggested, "No language can produce neutral and objective reports."⁴² We have to use the tools we are given. However, as with collection technology, it is

important to remember that language may not communicate the new and unexpected. Commenting on the revolution in Corcyra, Thucydides wrote: "To fit in with the change of events, words too had to change their usual meanings."⁴³ He could have been referring to the recent turmoil in the former Soviet Union and the difficulty U.S. intelligence agencies had in adjusting language to dramatic new circumstances.

Crimes and Misdemeanors

Hitler's Foreign Minister, von Ribbentrop, was convinced that Great Britain would not go to war against Germany, prompting this note to his staff: "If it came to my notice that anyone had expressed a contrary opinion I would kill him myself in his office, and take responsibility before the Fuhrer for it."⁴⁴ Another example of willfull misconduct is provided in William Wister Haines' Command Decisions. Kane, a gunner in a British bomber, is debriefing his combat sortie with Homer and Brockie, who will stand for junior intelligence officers in this example:

Kane: "Well, three I was shooting at came apart but I guess every top turret and nose gun in our element was working on 'em too."

Prescott stepped over and turned the claim board toward Kane.

Homer: "Three more would make an even hundred, sir, our first...."

Brockie: "There would still be time for a correction to make the Sunday papers at home, sir."

Kane: "A correction on claims, you mean?"

Homer: "Of course, sir. One hundred."

Kane pondered a minute: "Round numbers always sound suspicious, Homer. Make it a hundred and one."

General Dennis, can you provide Homer and Brockie here with a place to write a press release?"⁴⁵

These vignettes illustrate a common problem. As Donald McLachlan puts it, "There is a constant temptation, in the sphere of staff work, where intelligence and operations meet, to give an impression of the enemy situation which fits in with other requirements. This is known...as 'situating the appreciation,' the opposite of 'appreciating the situation.'"⁴⁶

Intelligence officers have been "situating the appreciation" since generals and politicians learned that "...intelligence can be used the way a drunk uses a lamp post --for support rather than illumination."⁴⁷ As Churchill wrote, "The temptation to tell a chief in a great position the things he most likes to hear is the commonest explanation of mistaken policy."⁴⁸ Those who bow to the temptation have been described as "intelligence waiters."⁴⁹

Intelligence waiters operate at every level of the bureaucracy. Morris Blachman, a military intelligence officer in Vietnam, reported, "Based on what I saw in my little corner of the air war, the actual destruction was often less than half what the Air Force claimed."⁵⁰ Similarly, from 1964 to 1967, when the U.S. was building troop strength in Vietnam, the Defense Intelligence Agency (DIA) highlighted North Vietnam's rate of infiltration to the South and ease of recruitment. In 1967, when we were ostensibly winning the

war, DIA downplayed recruitment and infiltration.⁵¹ In Korea, McArthur could not believe the Chinese were committing troops in large numbers, so "his intelligence officer, Major General Charles Willoughby, responsive as McArthur's staff members were ever wont to be to the moods of their chief, accommodated him by estimating 60,000 to 70,000 Chinese 'volunteers' in Korea...."⁵² The actual number was 300,000 crack troops. Clark Clifford "cooked" his estimate of Soviet capabilities to accord with Truman's policy plans.⁵³ And Walt Rostow was notorious as Lyndon Johnson's willing "intelligence waiter."⁵⁴

As Michael Handel notes, "It is one thing for a statesman to listen carefully to his intelligence advisors, then make a decision counter to their best judgment, and another for him to wield his political strength and authority in the interest of receiving only that information which conforms to his preconceived notions and political biases."⁵⁵ Cases of the former are common enough: Rommel "ignored" evidence of a British plan to attack his rear flank as a delay would interfere with his plan to capture Tobruk; Montgomery "rejected clear evidence of substantial German tank formations at Arnhem" in order to carry out his plans; and Bomber Harris "ignored data that nighttime area bombing was not achieving its objectives."⁵⁶ However, cases of the latter are also common and probably more dangerous. Churchill put great pressure on his Director of Naval Intelligence to inflate the number of U-Boat sinkings in order to bolster public

confidence. When the DNI refused to give in, Churchill simply invented and publicized his own numbers, arriving at one point at a figure of 35 destroyed U-Boats to the Operational Intelligence Center's nine.⁵⁷ After the Tet offensive, Westmoreland asked his intelligence staff to "fashion a fresh analysis of Communist strategy...tailored to accommodate his appeal for more men."⁵⁸

Although these seem to be obvious cases of deceit, the process can be very subtle. In the aforementioned case of Air Force bomb damage estimates, Blachman is at pains to add that it was "not lying systematically but favoring inflated pilot reports over the hard evidence of tactical reconnaissance." Likewise, DIA's shift on North Vietnamese infiltration and recruitment rates was a matter of emphasis, according to Patrick McGarvey. Favorable reports were signed by Westmoreland and sent in a personal wire to President Johnson, while recruitment studies were "pouched or cabled with reports on the fluctuating price of rice." Richard Betts also refers to "...the subtle ways in which the military [intelligence] reporting system controlled the flow of information from the field [in Vietnam] and conditioned the premises of decision." He adds:

In this respect, mid-echelon officers wielded influence that those at the most senior level did not. Analytical distortion of data at low levels may ramify into distortion of evaluation--and hence of decision--at high levels. The transmission of information transforms facts into judgments....Proof that a policy was or was not working was neutralized

by the combination of fraud at the bottom of the chain of command, selectivity in processing data at the middle of the chain of command, and selectivity of perception at the top of the chain of command.⁵⁹

Fooling Ourselves

The call for objectivity seems to have a hollow ring. Biases assume many different guises. An explicit political bias may become embedded in an institutional hierarchy. A military officer, who deliberately twisted intelligence to serve the parochial needs of his service, may come to believe the biased perspective that he once held as an expediency. Must we accept a significant margin of intelligence error? Or, is there a way to strengthen the integrity of the intelligence process and minimize error?

There is no such thing as objective intelligence. We cannot insist on tracing intelligence failures to one bent fact or another, to bias in one phase of the intelligence cycle or another. Likewise, it is useless to dog intelligence officers down the trail toward absolute truths, asking them to provide "just the facts," issuing prescriptions for objectivity as a remedy for misperception. Since all facts are biased, we must look elsewhere for the reason why one estimate succeeded and another failed, to how we handle the facts, to our frames of reference, to our concepts. As Ole Hosti has observed:

Even more important than raw information is a valid theory to give it meaning and relevance; rarely do

"facts speak for themselves." A single fact or even a set of data is usually consistent with several theories. It is quite probable that most international disasters can be traced not to inadequate information but rather to the absence of adequate models into which to place the facts.⁶⁰

It is at higher levels of intelligence assessment, where observations are mediated by intelligence concepts and concepts are judged in the moments prior to decision, that we must look for ways to minimize errors of perception.

Notes

1. W. E. H. Lecky, A History of Rationalism, quoted in George Seldes, The Great Quotations, 2nd ed. (New York: Pocket Books, 1968), p. 75.
2. David Irving, The Mare's Nest (Boston: Little Brown, 1964), pp. 274-275. Recounted in Robert Jervis, Perception and Misperception in International Politics (Princeton: Princeton University Press, 1976), p. 153.
3. Carl von Clausewitz, On War. Michael Howard and Peter Paret, eds. (Princeton: Princeton University Press, 1976), p. 117.
4. Ibid., p. 117. "Many intelligence reports in war are contradictory; even more are false; and most are uncertain."
5. The philosophical distinction is drawn in Ruth A. Putnam, "Seeing and Observing," Mind, v. 78, 1968, pp. 493-500.
6. From Benno Wasserman, "The Failure of Intelligence Prediction," Political Studies, June 1960, pp. 158-159.
7. Referred to in Robert M. Gates, "Guarding Against Politicization," Studies in Intelligence, Spring 1992, p. 1.
8. Thomas L. Hughes, The Fate of Facts in a World of Men--Foreign Policy and Intelligence-Making (New York: Foreign Policy Association, December 1976, no. 233), p. 5.
9. Walter Laqueur, A World of Secrets: The Uses and Limits of Intelligence (New York: Basic Books, 1985), p. 294.
10. Ibid., pp. 294-295.
11. Ibid., p. 299.
12. Examples are the several useful but symbolically misleading computer-assisted methods for "objective" analysis. These include Bayesian Statistics, Critical Event Filters (CEF), Cross-Impact Analysis, Multi-Attribute Utility (MAU), Projected Alternate Major National Causes of Action (PANMAC), and the Delphi Technique. See Laqueur, World of Secrets, pp. 275-276; Ephraim Kam, Surprise Attack: The Victim's Perspective (Cambridge: Harvard University Press, 1988), pp. 220-221; and Michael A. Turner, "Issues in Evaluating Intelligence," International Journal of Intelligence and Counterintelligence, Fall 1991, p. 280. All three authors cite the useful review of several of these methods by Richards Heuer, Jr., ed., Quantitative Approaches to Political Intelligence: The CIA Experience (Boulder CO: Westview Press, 1981).

13. Transcribed in Gates, "Guarding Against Politicization," p. 1.
14. Wasserman, "The Failure of Intelligence Prediction," p. 159.
15. This is discussed in Roger Hilsman, Strategic Intelligence and National Decisions (Glencoe IL: Free Press, 1956), p. 62.
16. Vendler raises the useful question of which facts qualify to be given as the cause. Vendler uses the example of a house fire on Elm Street. The fire investigator eliminates the several obvious possibilities before deciding that the fire was caused by a short circuit. He might not think of citing the presence of oxygen as a cause, but it certainly is and would seem more apparently the cause in a controlled atmosphere like a space capsule. On the other hand, before the discovery of oxygen, it could not be given as a cause of fires. This example is used to make the point that "facts depend on the totality of scientific knowledge." See Zeno Vendler, "Causal Relations," in Davidson and Harmon, eds., The Logic of Grammar (Dickenson, 1975), pp. 255-261.
17. Wasserman, "Failure of Intelligence Prediction," p. 162.
18. Hughes, The Fate of Facts, p. 47.
19. Wasserman, "Failure of Intelligence Prediction," p. 161.
20. Donald McLachlan, Room 39: A Study in Naval Intelligence (New York: Atharum, 1968), pp. 252-253.
21. Ibid., p. 409.
22. Ibid., pp. 351-352. The reference to Admiral Turner is attributed by McLachlan (p. 409) to Roberta Wohlstetter, Pearl Harbor: Warning and Decision (Stanford: Stanford University Press, 1962).
23. Ibid., p. 58. Also see Patrick Beesly, Very Special Intelligence (New York: Doubleday, 1978), pp. 3-5.
24. Laszlo Valki, "Where Have All the Soldiers Gone? Changing Threat Perception in Europe," International Social Science Journal, February 1991, p. 107.
25. Patrick McGarvey, "DIA: Intelligence to Please," in Morton A. Halperin and Arnold Kanter, eds., Readings in American Foreign Policy: A Bureaucratic Perspective (Boston: Little Brown, 1973), pp. 319-320.

26. Williamson Murray, The Change in the European Balance of Power, 1938-1939: The Path to Ruin (Princeton: Princeton University Press, 1984), p. 355 and p. 457.
27. Hughes, The Fate of Facts, pp. 39-40.
28. Both questions are asked in Garthoff, "On Estimating and Imputing Intentions," p. 24.
29. Karl Mannheim, quoted in Gustav Ischeiser, Appearances and Realities (San Francisco: Josey-Bass, 1970), p. 3.
30. Richard K. Betts, "Analysis, War, and Decision: Why Intelligence Failures Are Inevitable," World Politics, October 1978, p. 70.
31. Isaac Ben-Israel, "The Philosophy and Methodology of Intelligence: The Logic of the Estimate Process," Intelligence and National Security, Summer 1989, p. 711.
32. Uri Ra'anan, "Static and Dynamic Intelligence Perceptions: The Soviet Union--Problems of Analysis and Evaluation," in Robert L. Pfaltzgraff et. al., Intelligence Policy and National Security (Hamden CT: Archon Books, 1981), p. 83.
33. Thomas Kuhn, The Structure of Scientific Revolutions (Chicago: University of Chicago Press, 1962), p. 59.
34. Jervis, Perception and Misperception, p. 156.
35. Murray, Path to Ruin, p. 63.
36. Kam, Surprise Attack, p. 99.
37. Hughes, The Fate of Facts, p. 9.
38. See Introduction. Also see David J. Bell, Power, Influence, and Authority: An Essay in Political Linguistics (New York: Oxford University Press, 1975) for other examples from comparative socio-cultural studies that suggests that language shapes perceptions.
39. Jervis, Perception and Misperception, pp. 162-163. Jervis quotes Arthur Marder, From the Dreadnought to Scapa Flow, v. 5, Victory and Aftermath (January 1918-June 1919) (London: Oxford University Press, 1970), pp. 99-100.
40. Robert Sinclair, Thinking and Writing: Cognitive Science and the Directorate of Intelligence (Washington DC: Center for the Study of Intelligence), p. 11.

41. George Snyder and Paul Diesing, Conflict Among Nations (Princeton: Princeton University Press, 1977), pp. 316-320.
42. Kuhn, The Structure of Scientific Revolutions, pp. 126-127.
43. Thucydides, quoted in Bernard Knox, "Thucydides and the Peloponnesian War: Politics and Power," Naval War College Review, January-February 1973, p. 11.
44. Avi Shlaim, "Failures in National Intelligence Estimates: The Case of the Yom Kippur War," World Politics, April 1976, pp. 374-375. Shlaim cites Gilles Perrault, The Secrets of D-Day (Boston: Little Brown, 1965), p. 171.
45. William Wister Haines, quoted in Richard K. Betts, Soldiers, Statesmen, and Cold War Crises (Cambridge: Harvard University Press, 1977), p. 183.
46. Donald McLachlan, quoted in Michael I. Handel, "Intelligence and Military Operations," in Michael I. Handel, ed., Intelligence and Military Operations (London: F. Cass, 1990), p. 28.
47. Hughes, Fate of Facts, p. 24.
48. Winston Churchill, quoted in R.V. Jones, "Intelligence and Command," in Michael I. Handel, ed., Leaders and Intelligence (London: F. Cass, 1989), p. 290.
49. Michael L. Handel, "The Politics of Intelligence," Intelligence and National Security, October 1987, p. 42.
50. Morris Blachman, "The Stupidity of Intelligence," in Halperin and Kanter, eds., Readings in American Foreign Policy, p. 329.
51. McGarvey, "DIA: Intelligence to Please," pp. 322-323.
52. Bernard Brodie, War and Politics (New York: MacMillan, 1973), p. 76.
53. William Taubman, Stalin's American Policy (New York: Norton, 1982), p. 130.
54. Handel, "The Politics of Intelligence," p. 16.
55. Ibid, p. 14.
56. Handel, "Intelligence and Military Operations," p. 28.

57. McLachlan, Room 39, pp. 130-133.
58. Stanley Karnow, Vietnam: A History (New York: Penguin Books), p. 550.
59. Betts, Soldiers, pp. 184-201.
60. Ole Holsti, Crisis, Escalation, War (Montreal: McGill-Queens University Press, 1972), p. 26.

CHAPTER III

OBSERVING AND BELIEVING (Perception)

The High Command had substituted for the hard facts of the real situation--that is, for the results of the detailed intelligence at its disposal--the preconceived ideas it had about the enemy.¹

In the closing days of 1943, the German battle cruiser Scharnhorst was stalking convoy JW.55B off Norway. It was exercising great caution. As the only symbol of German might remaining in the fleet, it had clear instructions to avoid being outgunned. Even so, the Russia-bound convoy was important, and Admiral Doenitz at headquarters in Berlin was eager to relieve pressure on the Eastern Front with a naval triumph. When German intelligence intercepted a radio signal suggesting that British warships were in the vicinity of Scharnhorst, headquarters staff decided that it was unreliable. They preferred to believe that the signal originated further North. Later, German aircraft sighted the British cruiser Duke of York and four other ships in proximity to Scharnhorst. However, the report of a large ship among the four smaller ships was not believed. Admiral Schniewind at Gruppe Nord Flotte ordered Scharnhorst to intercept the convoy. The German battlecruiser was sunk by Duke of York a few hours later with tragic loss of life.²

Why were these reports not believed? The German staff certainly didn't want Scharnhorst lost. Bias was not a

factor. The British had no deception plan. Patrick Beesly, an intelligence officer in the Admiralty's Operational Intelligence Center at the time, believes that "Doenitz's burning desire to relieve pressure on the German Army in Russia blinded him to the true facts of the situation, and prevented him from drawing the right conclusions from the intelligence actually available to him...."³

Here, desires and expectations created a predisposition not to believe information which precluded an attack. A lecture by the psychologist William James at the turn of the century sheds light on this phenomenon:

When we listen to a person speaking or read a page of print, much of what we see or hear is supplied from our memory. We overlook misprints, imagining the right letters, though we see the wrong ones; and how little we actually hear when we listen to speech, we realize when we go to a foreign theater; for there what troubles us is not so much that we cannot understand what the actors say as that we cannot hear their words. The fact is that we hear quite as little under similar conditions at home, only our mind, being fuller of English verbal associations, supplies the requisite material for comprehension on a much slighter auditory hint.⁴

Intelligence officers also "hear" what they are disposed to hear. Preconceptions about potential adversaries have caused serious misperceptions. Is it possible to get at the root of these problems? If so, will an understanding of the perceptual mechanisms that cause analytic errors lead to any net improvements in the accuracy of intelligence assessment?

Kennan and Kenge

Kennan. In his monograph on "The Sources of Soviet Conduct," George Kennan recalled the author Thomas Mann:

...he compared the Buddenbrook family...to one of those stars whose light shines most brightly on this world when in reality it has long since ceased to exist. And who can say with assurance that the strong light still cast by the Kremlin on the dissatisfied peoples of the western world is not the powerful afterglow of a constellation which is in actuality on the wane?⁵

What we believe about other states is often an illusion. We can only guess about the real state of affairs in the galaxy of our adversaries. As it happens, we had been staring at a false light cast by the Soviet Union for perhaps ten years prior to its implosion. We have gazed at other false lights--the "the rising sun" before Pearl Harbor, Arab military "exercises" in October 1973, and the light from an ancient Persian dynasty in 1978.

Kennan's allusion raises an analogy between astronomy and threat assessment. He uses it again in considering how Soviet ideological beliefs distorted their assessments of the West. Since Soviet analytic reports were cast in Marxist-Leninist terms:

...Soviet leaders find themselves committed to a badly distorted image of the outside world....Thus ...they are able to apprehend everything about us but the main things. They view us as one might view the inhabitants of another planet, through a very powerful telescope. Everything is visible; one sees in the greatest detail the strange beings of that

other world going about their daily business...but what one does not see is the motivation that drives them in their various pursuits. This remains concealed; and thus the entire image, clear and intelligible in detail, becomes incomprehensible in its totality.⁶

Like astronomers, intelligence analysts predict outcomes based on observation and belief.⁷ Intelligence officers express professional beliefs in the form of concepts. Astronomers express beliefs in the form of theories. Concepts generate expectations; theories more formally produce hypotheses. Concepts and theories serve as "organizing principles for a mass of observed facts."⁸ As Abraham Kaplan puts it, concepts are "necessary to the logic of inquiry."⁹

Theories and concepts are particularly important in astronomy and intelligence, for each manages highly ambiguous information. Without a set of beliefs in intelligence, a concept, every observation would seem equally relevant.¹⁰ As Richard Betts explained in his study of intelligence failures, "Preconception cannot be abolished; it is in one sense just another word for 'model' or 'paradigm'--a construct used to simplify reality, which any thinker needs in order to cope with complexity."¹¹

In using only beliefs and observations, intelligence officers and astronomers are confronted with similar dilemmas. Beliefs are built on experience--concepts and theories are derived from previous observations.¹² In turn, concepts are used to shape new observations.¹³ That facts and theories are

interdependent is a problem. Since facts are biased--or what scientists call "theory-laden"--concepts are also biased. Even photo interpretation can be flawed in this way, as Roberta Wohlstetter suggested in her analysis of misperception during the Cuban Missile Crisis: "Photo interpretation assumptions included principles of optics [and] Euclidian Geometry [as well as] technological, economic, and political judgments. Inferences from interpretations themselves were in turn based on an even wider range of uncertain beliefs." Thus, analysts saw Soviet ships arriving in Cuba in several different lights.¹⁴

There is another similarity between intelligence and astronomy. Observations that are at odds with the prevailing theory or concept can't be tested in the laboratory. When an observation conflicts with a theory, which has priority?¹⁵ Because observations can't be tested, concepts are generally favored over contradictory data.¹⁶ Conflicting reports are interpreted in ways that support the concept.

The above case of photo interpretation provides a good example. The concept was that the Soviet Union's traditionally close hold on strategic weapons precluded the deployment of missiles to Cuba. Several disturbing observations called the theory into question. One of these was the arrival in Cuba of two large-hatched Soviet lumber ships, riding high in the water. In view of previous information, the lumber ships could have been carrying light

but space-consuming cargo (like missiles) instead of their usual heavy bulk. However, this was inconsistent with the established concept. So, photo interpreters attached no importance to the arrival. Later, when the low waterline was brought to their attention, they concluded that the ships were carrying bulky Soviet aid.¹⁷

Kenge. The analogy to astronomy illustrates some principles that complicate intelligence assessment. But the comparison breaks down. Intelligence is much more subjective than astronomy. Beliefs are less certain. They are tangled in interests, fears, and desires. Crisis places stress on the intelligence process. Moreover, intelligence deals with real threats. Rejecting one critical fact in favor of belief could prove fatal. Wohlstetter puts the problem in this way:

[What is]...true in the more exact sciences is more obviously true for spheres of practical activity such as the operation of intelligence agencies, and the inferences and decisions of an executive. Here, the assumptions that shape interpretation are likely to be more multifarious and also less explicit and therefore less tentatively held....Some of the relevant assumptions are held passionately. They are likely to include wishful or self-flattering beliefs, items of national pride, or claims at issue in partisan debate.¹⁸

Perceptions in intelligence are complicated by psychology. An excerpt from Colin Turnbull's anthropology of The Forest People illustrates the problem. A Pygmy named Kenge is being driven down an African road on his first trip out of his native forest:

He saw the buffalo, still grazing lazily several miles away, far down below. He turned to me and said, "What insects are those?"

At first I hardly understood; then I realized that in the forest the range of vision is so limited that there is no great need to make an allowance for distance when judging size....The same thing happened later on when I pointed out a boat in the middle of the lake. It was a large fishing boat with a number of people in it but Kenge at first refused to believe this. He thought it was a floating piece of wood.

When I told Kenge that the insects were buffalo, he roared with laughter and told me not to tell such stupid lies. When Henri...told him the same thing...Kenge still did not believe, but he strained his eyes to see more clearly and asked what kind of buffalo were so small....I tried telling him they were possibly as far away as from Epulu to the village of Kipu....He began scrapping the mud off his arms and legs, no longer interested in such fantasies.

The road led on down to within about half a mile of where the herd was grazing, and as we got closer, the "insects" must have seemed to get bigger and bigger. Kenge, who was now sitting on the outside, kept his face glued to the window, which nothing would make him lower....I was never able to discover just what he thought was happening--whether he thought that the insects were changing into buffalo, or that they were miniature buffalo growing rapidly as we approached. His only comment was that they were not real buffalo, and he was not going to get out of the car again until we left the park.¹⁹

If the story recalls Bernard Brodie's criticism of field commanders in World War I--"It was their horizons rather than their skills which proved so disastrously limited"--Kenge's problem is not simply one of perspective.²⁰ His beliefs about how the world looked were conditioned by experience. Those beliefs led to expectations about the unknown world. Expectations, in turn, created a predisposition to see in accordance with those expectations. Processing new

information is modified by predisposition, causing errors in perception. In Kenge's case, new data was first distorted to accord with his beliefs and expectations; later, as the discrepancies increased, he questioned the validity of the new information; finally, new observations were simply ignored. This can be applied to intelligence assessment, where Kenge's predicament is aggravated by even greater distance as well as concealment, ambiguity, politics, crisis, threat, and interactive adversaries.²¹

Beliefs about adversaries are stitched from the cloth of experience. An intelligence officer may guess that the initial phases of a Russian Northern Fleet exercise will feature anti-submarine warfare (ASW) because he observed that to be the case during the last dozen exercises. Problems may arise if the officer is short on experience, if his experiences bear little relation to the subject under study, or if errors were made in recalling experiences from memory.

He also draws on conventional wisdom. An analyst may not have observed Russian naval exercises, but he heard that they always begin with an ASW phase. Based on no other information sought or obtained, the British plan to force the Dardanelles in 1915 rested on the conventional wisdom that the arrival of the British fleet in Constantinople would precipitate a revolution.²² During the Second World War, the allies had strong intelligence suggesting that Italy would collapse quickly after the U.S.-U.K. invasion, but this view ran

counter to the conventional wisdom that "men always fight best in defense of their own soil." The result, as Donald McLachlan explained, was "a may or may not" intelligence assessment--"a dismal tale of orthodox logic being allowed to displace intelligence pointers."²³

Analysts also resort to historical lessons. However, they often select lessons that reinforce existing beliefs, use surface lessons without apprehending deeper meanings, or apply analogies wholesale in inevitably different situations. Analysts with the Far East Command did not regard North Korea's positioning for attack near the Demilitarized Zone in 1951 with any alarm, as they had seen the same movements in 1947 during the North's annual troop rotation.²⁴ Similarly:

...in 1956 Israel opened its attack on Egypt by dropping paratroopers deep into enemy territory thirty miles East of the Suez Canal, followed by a dash by a mobile column across Southern Sinai. Subsequently, the Egyptians thoroughly studied this Israeli war plan, expecting the next war to be carried out along similar lines. Israel's actions in 1967--especially the opening attack on Egyptian airfields and the concentration of the Israeli land effort in North-Central Sinai--was thus completely unexpected, which caused Egypt's swift military collapse.²⁵

Egypt learned only the superficial lessons of 1956 without understanding that the paratroop drop was designed to threaten the Suez Canal and thus force British and French intervention.

Some beliefs are images, and others are concepts or rules of thumb.²⁶ Both forms come into play during intelligence assessment, but it is difficult to separate the two. In the

example above, the Egyptian belief that Israel would attack along the same lines as it did in 1956 seems to be a theory. But, to what degree did Israel's reputation for boldness and aggression reinforce the belief? Similarly, French intelligence officers in 1936 allowed Germany's image of strength and aggression to influence assessments of the size of the Rhineland invasion force. The French overestimated the actual German force of three battalions "by a factor of 100 (larger than the entire German Army)," while British intelligence analysts overestimated by a factor of 10.²⁷ However, how much did the concept that Germany would not enter the Rhineland without overwhelming forces bolster the image?

This paper traces the clearer lines of concept and preconception, even while recognizing that images and desires also cause misperceptions. In any case, several studies suggest that expectations are more influential than desires, as the following example from Ludovic Kennedy's Pursuit: The Chase and Sinking of the Battleship Bismark demonstrates:²⁸

Thus when the captain of the cruiser shadowing the Bismark reported that the ship had altered course and was now headed back toward the pursuing British force, the admiral in charge did not believe him. He devoutly wished this message to be correct, but the German behavior reported made no sense. So he immediately concluded that the captain, although an experienced observer, had simply made an error.²⁹

Expectations create predispositions that condition our perception of incoming information. So, the Pearl Harbor duty officer misperceived the Army Signal Corp's radar report of

scores of inbound targets because he expected the arrival of several Flying Fortresses.³⁰ The British photo interpreter "...who thought the German secret rocket would be a '70-ton monster, launched only from enormous rail-served projectors,' studied pictures of a German facility several hundred yards from the nearest railway line and paid little attention to what he saw as 'a thick vertical column about forty feet high and four feet thick,'" which turned out to be an erected V-2.³¹ Similarly, British Fleet Air Arm planes from HMS Ark Royal attacked the British cruiser Sheffield while searching for Bismark, and dozens of false sightings of the German experimental "Walter" boats were reported in the days immediately after the British fleet was advised of their existence.³²

Psychology leads one to the same understanding of analytic thought processes as astronomy. Beliefs condition the perception of data just as theory conditions the observation of facts. Both are interrelated and interdependent. They are usually favored over reports. Incoming information tends to be assimilated to one's pre-existing belief system, one's preconceptions.

The Persistence of Concepts

Concepts are necessary for psychological balance in everyday situations.³³ Maintaining balance is usually rational, even if mistakes are made from time to time.

However, in intelligence assessment, this rationality is very tenuous because of ambiguity and the high cost of error. Israel's Agranat Commission, which looked into the causes of the 1973 surprise attack, blamed the warning failure on the intelligence community's "stubborn adherence" to "the conception" that Egypt would not go to war without the capability to strike deeply at Israeli airfields and that Syria would not attack without Egypt.³⁴ The concept persisted despite Egyptian and Syrian military maneuvers near Israel's borders, which were perceived as a multi-division exercise in the case of Egypt and defensive movements in Syria's case. As a result, Israel was attacked on the afternoon of October 6th with only a few hours warning.

The Agranat Report provides "a convincing analysis of the barriers to clear perception which stem from too rigid an adherence to a theory."³⁵ It illustrates how analysts and decision-makers treat information that contradicts preconceptions. Information is either ignored or distorted.³⁶ Otherwise clear signals are misunderstood. The validity of the data or the veracity of the source is undermined. Or, additional information is selected to bolster belief against discrepancies or devalue discrepancies against belief.

For example, the director of Israeli military intelligence, General Zeira, "...did not seek additional evidence from any of the other sources at his disposal, but accepted as valid the interpretation that did not conflict

with 'the conception.'"³⁷ A report from the field, which drew attention to non-exercise indications of attack, was discredited and suppressed by the head of intelligence for Southern Command. The researcher who drew up a list of Egypt's offensive preparations the day before the attack "...perceived but did not grasp the import of the signals that were in conflict with [the concept]." Hard intelligence was shaped to avoid conflict with the concept: A significant increase in Syrian fighter aircraft activity near the border was interpreted as preparations for nothing more than an attack on an isolated village.³⁸

Some critical information was simply ignored. When Soviet advisors departed Egypt and Syria, a clear indication that Arab military maneuvers were not an exercise, the information was accepted, briefed to Golda Meir and the Cabinet, then promptly ignored until raised once more by the Agranat Commission. (The U.S. also believed that Egypt was too weak to initiate war. Many U.S. analysts preferred the "absurd explanation" that the departure of the Soviet advisors was evidence of a developing crisis between Syria and Egypt on the one hand and the Soviet Union on the other.³⁹)

These are clear cases of misperception. Information that conflicts with a comfortable concept is overlooked or shaped into conformance. Other instances are equally clear if less comprehensive. Several British intelligence agencies refused to believe that Germany would invade Russia, despite having a

captured German ENIGMA encoding machine that was providing secret German communications on preparations for the invasion.⁴⁰ Similarly, the British ignored highly reliable ULTRA intelligence on German preparations to attack at Ardennes because they believed that Germany was too weak in that area.⁴¹

In 1940, Colonel Oster of German military intelligence (the Abwehr) told the Dutch military attache that Denmark and Norway would be invaded on March 9th, a fact "dismissed in Copenhagen as implausible." After the invasion, Oster told the Dutch attache that his own country would be invaded on May 10th, "a warning that was not believed in the Hague" despite the accuracy of the earlier information.⁴² Likewise, when Admiral Kimmel at Pearl Harbor received an "action" message that the Japanese were destroying their diplomatic codes, he ignored the implications of the data and took no action, not even forwarding the report to the Commander of the Department of the Army in Hawaii.⁴³

The British Admiralty in the 1930's believed that Germany building a navy for Baltic operations, not for operations against Great Britain. Thus, when British intelligence agencies learned of Bismark's very large beam and shallow draft--specifications that were clear pointers to the fact that the German battleship would exceed 35,000-ton treaty limitations--the menacing implications of the intelligence were defanged by adopting the view that Bismark was being

built exclusively for operations in shallow Baltic waters."⁴⁴

Even such "hard" facts as numbers can be badly distorted by preconceptions. Andrew Krepinevich tells how the Military Advisory Command-Vietnam (MACV) regularly "...accepted information that reinforced its strategic approach while overlooking data that suggested lower levels of enemy casualties." He relates how a MACV study of captured enemy documents concluded that the true 1966 body count was 4.5 percent above the number officially reported by MACV at the time, while an independent study using the same documents found 20 percent fewer casualties than first reported. Later, more extensive studies found that losses were about half of the totals reported by MACV.⁴⁵

Crisis and Ambiguity

One reason for the abundance of wartime examples of misperception is that crisis increases ambiguity. As ambiguity increases, preconceptions stiffen to simplify decision-making.⁴⁶ As Michael Handel points out, "The ambiguous and uncertain nature of intelligence is a major reason for its distortion....Ambiguity legitimizes different interpretations, allowing politically-motivated parties to select the one they prefer."⁴⁷ It also allows intelligence officers to select the interpretation they believe rather than one supported by uncertain evidence. Thomas Hughes recalls a defense intelligence message from a crisis in the 1960's that

read, "These basic characteristics of uncertainty will almost certainly continue to be operationally significant in the foreseeable future." Such messages, he adds, "positively invite the personal interpretive touch."⁴⁸

Jervis cites the example of General Short at Pearl Harbor in the days before the surprise attack. Short was sensitized to the danger of sabotage and tended to interpret all intelligence reports in this light. On November 27th, Short received a message from Washington to expect "hostile action" at any moment. Washington "...meant 'attack of American possessions from without,' but General Short understood this phrase to mean 'sabotage.'"⁴⁹

Ambiguity increases as one moves from tactical intelligence to operational evaluation to strategic assessment.⁵⁰ At the strategic level, highly ambiguous assessments of intentions are at a premium, while less ambiguous estimates of capabilities are featured at the operational and tactical levels. Even so, today, ambiguity at all levels is increasing, despite vast improvements in intelligence capabilities. As Desert Storm demonstrated, tactical commanders now have an interest in strategic intelligence, and commanders at the strategic level have an interest in tactical intelligence.⁵¹ Also, the massive collection efforts mounted during modern-day crises frequently increase ambiguity, instead of clarifying intelligence problems.⁵² Terrorism, narcotics, and other low-intensity

conflicts confront even tactical intelligence officers with high ambiguity. In guerilla war, "such ambiguities [as who to count as soldiers] make it easier to politicize the intelligence community, since there are no objective criteria by which the goals, success or failure, and estimates of the enemy's strength can accurately be assessed."⁵³ As Richard Betts said of Vietnam, "Ambiguous information, filtered through selective perception, allowed the Colonels to deceive the Generals, the Generals to deceive the President, and all to deceive themselves."⁵⁴

Dilemmas of Analysis and Decision

Conventional efforts to minimize misperception in intelligence have been either scientific or bureaucratic. The scientific approach aims at increasing the objectivity of intelligence, while bureaucratic reforms seek to loosen the grip of concepts and lessen the influence of policy. However, intelligence works at several different levels for several different purposes, making across-the-board reforms difficult.⁵⁵ More importantly, reforms have yet to come to terms with the interrelated problems of bias, preconception, and ambiguity.

Many professionals embrace objectivity as a standard of performance.⁵⁶ However, the necessity of biases and concepts ensures that the cost is not only high but probably misspent. Sherman Kent once warned that "...overprotecting the

objectivity of the intelligence analyst could be likened to piling armor on a medieval knight until he was absolutely safe but completely useless."⁵⁷ As Thomas Hughes puts it:

Most interested receivers will attach meanings to fact. But the conceptual tools which each receiver personally brings to bear on the facts will have uneven consequences. This is both the rationale for and the predicament of "objective" intelligence. In the absence of context, order, and structure imposed on the facts, they can be chosen, arranged, and accommodated to the preconceived ideas of opinionated men. Or, they may be emptied into the sieves of mindless consumers to be left to dribble out into inconsequentiality, to find their own way undirected by any real preconceptions. Or, they may deliberately be poured into reuseable bottles already labeled with vintage views strongly held and championed.⁵⁸

Several recent studies have suggested even more quantification.⁵⁹ More intelligence work would be shifted from uncertain human hands to the comfortable certainties of decision matrices and statistical programs. However, as Walter Laqueur notes, ambiguity--from both too little and too much information--guarantees that quantification brings "...artificial order into an essentially disorderly situation." He adds:

It would be most welcome if there were a simple, elegant model...that could be superimposed on reality and provide an answer to all uncertaintiesUnfortunately, simple models have the disadvantage of being simple; they are of little help in understanding a world which is both complex and in a constant state of change. Dynamic models, on the other hand, have other drawbacks; with them, the few certainties the simple model provides tend to disappear. Such difficulties may not be major problems on the theoretical level, but in the world

of intelligence these are decisive handicaps.⁶⁰

Thus, from the many post-mortems of intelligence failure very little in the way of a scientific theory of intelligence has emerged.⁶¹ Walter Laqueur concludes that "...the outcome of the search for a scientific theory improving the predictive capacity of intelligence has been quite disappointing."⁶²

Bureaucratic reforms are more practical and appear more promising. To ensure that alternate viewpoints are heard, some intelligence managers have hired devil's advocates. However, as Richard Betts has noted, the advocate's credibility is quickly undermined because dissent is automatic, often trivial, and usually wrong. Betts also points out that devil's advocacy "...may perversely facilitate consensus-building by domesticating true dissenters or providing the illusory comfort that all views have been carefully examined."⁶³

More promising is multiple advocacy, which ensures that the viewpoints of several intelligence agencies are heard. This is a compelling rationale for joint military intelligence centers. During the Second World War, British army intelligence would regularly inflate the number of German divisions, possibly due to the traumas of Dunkirk and Crete, and air force intelligence would underestimate the number of German fighters, possibly to present a rosy view of the effects of the RAF bombing campaign. These self-delusions persisted until a joint intelligence staff was formed and each

estimate was subjected to "the five angles" of viewpoint.⁶⁴

On the other hand, as Michael Handel warns, "the search for consensus may also reduce the objective quality of estimates in the sense that truth becomes a vector of the relative power and influence of each of the participating organizations rather than the result of the best and most professional judgment."⁶⁵ Also, while multiple advocacy is useful in reducing errors caused by preconception, it increases ambiguity.⁶⁶

Some reformers favor centralizing intelligence. They argue that DIA and the service intelligence agencies are predisposed to slant intelligence to justify operational performance on the one hand and justify mission on the other.⁶⁷ However, centralization doesn't come to grips with bureaucratic realities.⁶⁸ DIA itself was established to consolidate service intelligence activities with the result that the services agencies grew larger than they were before DIA.⁶⁹ Also, centralization insulates preconception. In 1973, only the Israeli Military Intelligence Directorate, with its firm preconceptions, was responsible for the Arab warning problem--Hammosad was looking farther afield, Shin Beth looking internally, and the Foreign Office Research Department looking only at political intelligence.⁷⁰

More of a dilemma is the relationship between policy and intelligence. The problem is where to place intelligence in relation to politics, or what Thomas Hughes calls "the

conundrum of staying close enough to policy to be relevant, yet far enough away to be objective."⁷¹ As intelligence gets further away from policy, it loses meaning and increases ambiguity without decreasing biases or preconception. As intelligence gets closer to policy, it gains meaning and may decrease ambiguity but contends with additional political biases. As a result, intelligence agencies are poised somewhere in between the two extremes, not suffering the full effects of either but influenced to some extent by both.

Another dilemma concerns the relationship between an intelligence officer and his boss. The requirements of analysis are often not compatible with the requirements of decision.⁷² Analysts may need time for thought and reflection, but politicians and military commanders must often decide quickly. Complex situations require careful treatment and subtle explanations, but decision-makers want "yes" or "no" answers, "just the bottom line," or a look at the raw intelligence. Captain Jackson's preference for the bottom line resulted in a false intelligence report during the most critical moments of Jellicoe's Jutland campaign.⁷³ While chasing Bismark in the North Atlantic, the British Admiral Tovey requested raw intelligence. Sent a bearing on Bismark, it was plotted in his flagship on a Mercator chart instead of a Great Circle chart, leading him to the wrong conclusion that Bismark was steaming Northeast instead of Southeast as the Operational Intelligence Center could have told him.⁷⁴

These dilemmas could be resolved through mutual trust and understanding. Without the trust of his boss an intelligence officer is finished. As Churchill's scientific intelligence advisor, R.V. Jones, put it: "The establishment of trust and cooperation between a leader and a wisely chosen intelligence advisor is ultimately the most critical link in the whole intelligence process."⁷⁵ However, establishing trust raises another dilemma. Intelligence officers and decision-makers compete for viewpoints. Intelligence assessments are always potentially competitive decisions. This creates a tension between intelligence advisors and their bosses. As Hughes explains:

A good intelligence officer will persist in telling a policy-maker what he should know, not what he wants to know....Against the intelligence officer's obligation to be correct, there will be the policy-maker's disposition not to be corrected....Attempts to refocus the big pictures of policy-makers...build tension between him and intelligence. Not that analysis will always differ from the preconception of a given policy-maker. But ...almost always there will be a difference between the clear picture seen by the convinced policy-maker and the cloudy picture seen by intelligence.⁷⁶

This tension is usually resolved in one of four ways: a) the leader may distance himself from intelligence and lose touch with information vital to decision-making;⁷⁷ b) he may fire his advisor and hire one more easily bent to his viewpoints; c) he may co-opt the officer, using him for purposes other than intelligence;⁷⁸ or d) the intelligence officer may either mirror his boss's views or deliberately pander to his boss's

viewpoints. All of these alternatives are unsatisfactory.

These dilemmas suggest that intelligence failures are inevitable. Adversaries are complex, reacting subjects. Collection and analysis obey our expectations. Facts are marshalled with distorting preconceptions. Ambiguity guarantees a certain threshold of error. Moreover, the chances of error have increased with greater distance from the battlefield, higher levels of technology, and added layers of bureaucracy. Misperception in intelligence assessment seems to be part of both the human and the modern condition.

If intelligence failures are inevitable, is it possible to incrementally improve the accuracy of assessments? Is it possible, in Klaus Knorr's words, "...not to obviate the problems but to improve the 'batting average'--say, from .275 to .301?"⁷⁹ It may be possible by asking less conventional questions. Instead of asking how to eliminate bias and preconception, we should ask which biases are best, which concepts are right. Then we should ask how intelligence officers and decision-makers can be encouraged to recognize what is right.

Notes

1. Conclusion of a French officer's study of the Army's defeat in Indochina in 1949, quoted in Bernard B. Fall, The Two Vietnams: Political and Military Analysis (Boulder CO: Westview Press, 1984), p. 109.
2. Patrick Beesly, Very Special Intelligence (New York: Doubleday, 1978), pp. 220-221.
3. Ibid., p. 221. Also see Donald McLachlan, Room 39: A Study in Naval Intelligence (New York: Athenum, 1968), pp. 36-37. McLachlan adds another dimension to this story: "What was not known in Kiel [Gruppe Nord Flotte] was that the Luftwaffe intelligence officer, on receiving from his reconnaissance aircraft the signal 'five warships, one apparently a big ship, NW of North Cape,' had struck out the words in *italic* on the ground that only definite information and not conjectures should be passed on to the Navy."
4. William James, quoted in Robert Jervis, Perception and Misperception in International Politics (Princeton: Princeton University Press, 1976), pp. 147-148.
5. "X" (George Kennan), "The Sources of Soviet Conduct," Foreign Affairs, July 1947, p. 580.
6. George Kennan, "Second Reith Lecture," quoted in Benno Wasserman, "The Failure of Intelligence Prediction," Political Studies, June 1960, p. 156.
7. See Isaac Ben-Israel, "Philospophy and Methodology of Intelligence: The Logic of the Estimate Process," Intelligence and National Security, Summer 1989, p. 661.
8. Errol Harris, Hypothesis and Perception (London: Allen and Unwin, 1970), pp. 290-291.
9. Abraham Kaplan, quoted in a slightly different context in Jervis, Perception and Misperception, p. 156. Also see Thomas Kuhn, The Structure of Scientific Revolutions, 2nd ed., (Chicago: University of Chicago Press, 1970).
10. A paraphrase of Kuhn, Structure of Scientific Revolution, p. 15.
11. Richard K. Betts, "Analysis, War, and Decision: Why Intelligence Failures Are Inevitable," World Politics, October 1978, pp. 83-84.
12. See, for example, Jervis, Perception and Misperception, p. 217.

13. The interdependence of facts and theories is a widely understood subject of philosophy, theoretical science, behavioral science, as well as political science and intelligence. See, for example, Leszek Kolakowski, Main Currents of Marxism, v. 3, (Oxford: Clarendon Press, 1978), pp. 233-234; Harris, Hypothesis and Perception, pp. 290-292; Richard and Shirley Jessor, "The Perceived Environment in Behavioral Science," American Behavioral Scientist, July-August 1973, p. 804; and Jervis, Perception and Misperception, pp. 154-162.

14. Roberta Wohlstetter, Cuba and Pearl Harbor: Hindsight and Foresight, RM-4328-ISA, (Santa Monica CA: Rand, 1965), pp. 36-37.

15. This discussion is drawn from Ben-Israel, "Philosophy and Methodology of Intelligence," pp. 672-673.

16. Ibid., p. 673.

17. Wohlstetter, Cuba and Pearl Harbor, p. 22.

18. Ibid., pp. 38-39.

19. Colin Turnbull, The Forest People (New York: Simon and Schuster, 1961), pp. 252-253, quoted in Jervis, Perception and Misperception, p. 149.

20. Bernard Brodie, quoted in Ole Holsti, Crisis, Escalation, War (Montreal: McGill-Queens University Press, 1972), p. 216.

21. The layman entering the minefield of psychology treads on very dangerous ground. Hypotheses on the psychology of perception emerge quickly and once credible explanations now seem incredibly simple. It is not my intention to apply, say, "Gestalt" psychology to intelligence or to find the latest hypothesis only to have it go out of style tomorrow. In borrowing some psychology for the pages that follow, I have applied three standards: 1) that the principle of perception, regardless of age or vogue, offers some real insight into the process of intelligence assessment; 2) that the principle is founded on firm empirical ground, even if doubtful as a comprehensive theory; and 3) that it has been the subject of wide discussion in both psychological literature and the literature associated with assessment and decision-making. In so doing, I have relied primarily on three comprehensive studies: Jervis, Perception and Misperception; Martha Cottam, Foreign Policy Decision-Making: The Influence of Cognition (Boulder CO: Westview Press, 1986); and Ephraim Kam, Surprise Attack: The Victim's Perspective (Cambridge: Harvard University Press, 1988).

22. Jervis, Perception and Misperception, p. 174.

23. McLachlan, Room 39, p. 260.

24. Kam, Surprise Attack, p. 128.
25. Ibid., pp. 129-130.
26. Ibid., p. 86.
27. Herbert Goldhamer, Reality and Belief in Military Affairs, R-2448-NA, (Santa Monica CA: Rand, February 1979), pp. 3-4.
28. Jervis, Perception and Misperception, pp. 356-372.
29. Ibid., p. 369.
30. John Keegan, The Second World War (New York: Viking, 1990), p. 400.
31. David Irving, The Mare's Nest (Boston: Little Brown, 1964), p. 67, recounted in Jervis, Perception and Misperception, pp. 143-144.
32. McLachlan, Room 39, pp. 37-38.
33. See Kam, Surprise Attack, pp. 89-94.
34. Avi Shlaim, "Failures in National Intelligence Estimates: The Case of the Yom Kippur War," World Politics, April 1976, p. 352.
35. Ibid., p. 352.
36. Robert Jervis has delineated eight different ways that decision-makers misperceive discrepant data to preserve their main beliefs. I have drawn from these in simplifying the problem for the sake of exposition and insight. See Jervis, Perception and Misperception, pp. 291-297.
37. This and the following two examples are from Shlaim, "Failures of National Intelligence Estimates," pp. 348-380.
38. Kam, Surprise Attack, p. 105.
39. Henry Kissinger, cited in Jervis, Perception and Misperception, p. 144.
40. Kam, Surprise Attack, pp. 95-96.
41. Keegan, The Second World War, p. 500. Also see McLachlan, Room 39, p. 420, which elaborates on the Ardennes situation from the point of view of the Royal Navy: "We had certain movement and signal traffic indications [of attack] but the Royal Air Force rather played it down. The Chiefs of Staff rather

took the same view and told the Joint Intelligence Center to 'watch it.' While we 'watched,' it happened."

42. Holsti, Crisis, Escalation, War, pp. 205-206.

43. Kam, Surprise Attack, p. 101.

44. Wesley K. Wark, "Baltic Myths and Submarine Bogeys: British Naval Intelligence and Nazi Germany 1933-1939," The Journal of Strategic Studies, March 1983, p. 72. Also see McLachlan, Room 39, pp. 135-142.

45. Andrew F. Krepinevich, Jr., The Army and Vietnam (Baltimore: Johns Hopkins University Press, 1986), p. 203.

46. See, for example, Cottam, Foreign Policy Decision-Making, pp. 124-125.

47. Michael Handel, "The Politics of Intelligence," Intelligence and National Security, October 1987, pp. 14-15.

48. Thomas L. Hughes, The Fate of Facts in a World of Men: Foreign Policy and Intelligence-Making (New York: Foreign Policy Association, December 1976, no. 233), p. 43.

49. Jervis, Perception and Misperception, p.206. Jervis quotes Roberta Wohlstetter, Pearl Harbor: Warning and Decision (Stanford: Stanford University Press, 1962), p. 74. Wohlstetter adds that General Short was not privy to all of the ULTRA intercepts that had so sensitized Washington to outside aggression. That ULTRA was read at Pearl Harbor one or two messages at a time, thus making it easier to bend to belief than comprehensive information, has been cited as contributing to the intelligence failure.

50. See Michael I. Handel, "Leaders and Intelligence," in Michael I. Handel, ed., Leaders and Intelligence (London: F. Cass, 1989), p. 19.

51. See Ernest R. May, "Intelligence: Backing Into the Future," Foreign Affairs, Summer 1992, p. 64.

52. John Prados, The Soviet Estimate: U.S. Intelligence Analysis and Russian Military Strength (New York: Dial Press, 1982), p. 293.

53. Handel, "Leaders and Intelligence," p. 25.

54. Richard K. Betts, Soldiers, Statesmen, and Cold War Crises (Cambridge: Harvard University Press, 1977), p. 203.

55. See Betts, "Analysis, War, and Decision," p.66.

56. Handel, "The Politics of Intelligence," p. 11.
57. Robert Gates, "The CIA and American Foreign Policy," Foreign Affairs, Winter 1987, p. 29. Gates cites Sherman Kent, Strategic Intelligence for American World Policy (Hamden CT: Archeon Books, 1965), p. 167.
58. Hughes, The Fate of Facts in a World of Men, p. 10.
59. Michael A. Turner, "Issues in Evaluating U.S. Intelligence," International Journal of Intelligence and Counterintelligence, Fall 1991, p. 280.
60. Walter Laqueur, A World of Secrets: The Uses and Limits of Intelligence (New York: Basic Books, 1985), p. 275.
61. Laqueur, A World of Secrets, p. 269.
62. Walter Laqueur, "The Question of Judgment: Intelligence and Medicine," Journal of Contemporary History, October 1983, p. 533.
63. Ibid., p. 80.
64. McLachlan, Room 39, pp. 251-258.
65. Handel, "The Politics of Intelligence," p. 19.
66. Betts, "Analysis, War, and Decision," pp. 76-77.
67. Ibid., pp. 64-65. Robert Jervis cites several interesting cases of overidentification with mission in Perception and Misperception, pp. 418-423. One is the case of the U.S. Forest Service, which, in zealously pursuing its mission of fighting forest fires, even resisted the practice of controlled burning to save trees. By identifying with fighting fires they lost sight of the fact tghat their larger goal was saving trees and promoting the best use of land. This is chronicled in Ashley Shiff, Fire and Water: Scientific Heresy in the Forest Service (Cambridge: Harvard University Press, 1962).
68. Betts, "Analysis, War, and Decision," p. 67.
69. Ibid., p. 79.
70. Shlaim, "Failures in National Intelligence Estimates," p. 366.
71. Hughes, The Fate of Facts, p. 57.

72. Richard K. Betts, "Policy-Makers and Intelligence Analysts: Love, Hate, or Indifference?" Intelligence and National Security, January 1988, pp. 184-185.
73. McLachlan, Room 39, p. 58.
74. Ibid., p. 152.
75. R.V. Jones, quoted in Handel, "Leaders and Intelligence," p. 34.
76. Hughes, The Fate of Facts, p. 19.
77. See Handel, "Leaders and Intelligence," p. 5.
78. See Hughes, The Fate of Facts, pp. 24-25.
79. Klaus Knorr, "Failures in National Intelligence Estimates: The Case of the Cuban Missiles," World Politics, April 1967, p. 460.

CHAPTER IV

BELIEVING AND THINKING (JUDGMENT)

A wise man proportions his belief to the evidence.¹

In the 1960's and 1970's, a Jesuit priest in Hong Kong was publishing reports about China. Father LaDany's China News Analysis was rabidly anti-communist. However, his biased and skeptical reports proved a more accurate guide to China's real political and military misfortunes than the unbiased reports.² Would a theater military commander want the objective reports or the right reports? Intelligence does not aim at "the truth;" it aims at being right. It is the function of intelligence to predict, and the measure of its usefulness is success.³ So, why are "bias" and "preconception" the bottom lines of most intelligence witch hunts? Isn't it time to stop asking how we rid ourselves of bias and preconception? Isn't it more useful to ask "which concept is most suited to the situation," or, as Walter Laqueur puts it, "which biases are permissible?"⁴

Suitability and Adaptability

Robert Jervis suggests that "successful detection of military and diplomatic surprises is less likely to be explained by the skill of the intelligence service in piecing together arcane bits of information than by the degree to which the service's predispositions and expectations fit the

actions that the [adversary] is planning to undertake."⁵

But, how do intelligence services know when the concept fits? The concept that Egypt would not attack without the capability to strike deeply at Israeli airfields was "right" in the period immediately following the 1967 war, and was even successful as late as May 1973 in tempering warning and decision during the crisis in Lebanon.⁶ However, in August 1970, Egypt deployed advanced surface-to-air missiles near the Suez Canal. According to Avi Shlaim, "This meant that Egypt's forces could operate on the East side of the Canal under an air umbrella, obviating the necessity to strike directly at Israeli airfields."⁷ Thus, the once useful concept "...was simply out of date, having failed to register the important strategic and political changes that took place between 1970 and 1973."

The problem, here, is change and adaptation to change. In his criticism of the Senate's conclusion that the intelligence community was a victim of preconception during the Cuban Missile Crisis, Fred Greene suggests that the real question is this: "When does a situation change, and when do all precedents or existing patterns become dangerously out of date?"⁸ As Thomas Hughes explains "...departing from a pre-existing consensus ought to be a primary intelligence function. Allegiance to a past position...should be among the least of factors for those who analyze the moving forces of history."⁹

Change is not the strong suit of intelligence. Because of ambiguity and the high cost of errors, established concepts are favored over conflicting reports. In this way, the risks of error are minimized but discovery and innovation are inhibited.¹⁰ This is why the intelligence community performs well when predicting the usual and performs poorly during periods of historical transition and change.¹¹ The Ukrainian wheat harvest is accurately projected but political revolutions and technological breakthroughs are often missed.¹²

Some academicians have suggested that intelligence officers should think through problems using less conservative methodologies. They favor abandoning established concepts in favor of one or two contradictory reports. This method is more susceptible to error, but it is more sensitive to change. For example, Isaac Ben-Israel suggests that Israeli intelligence reports in October 1973 should have been sorted into one of three categories: 1) reports refuting the exercise hypothesis; 2) reports refuting an alternative war hypothesis; and 3) reports supporting both hypotheses. The large third category would be discarded. In the particular case of the Yom Kippur War, the first category would have contained more reports and the exercise hypothesis would have been rejected. At the very least, both hypotheses would have been brought to the Cabinet as equally plausible.¹³ Similarly, Abraham Ben-Zvi concludes that "tactical indicators

of actualities" should be favored over "strategic assumptions of possibilities."¹⁴

These proposals have merit. However, they are static solutions. They apply to only one level of analysis, ambiguity, and risk. Ben-Israel's method might have worked in October 1973. However, he attaches the same value to all potentially refuting reports. If employed consistently, strategic warning errors would increase, thus desensitizing the Israeli warning system. Also, the method assumes that some intelligence will be unambiguous and sortable. In the common case when both alternatives are supportable, analysis will not assist decision. Ben-Zvi's proposal underestimates the value of concepts at the ambiguous strategic level of analysis and overestimates the certainty of tactical reporting.

If the problem is adapting to changing circumstances, a variety of methodologies must be employed. The degree to which intelligence concepts are favored over conflicting reports must at least be a function of the changing level of analysis and level of conflict. To illustrate the requirements for conceptual flexibility, we can construct a model for analysis at the operational level.

At the Operational Level

Three analytic variables are important here: a) the degree of ambiguity; b) relative tolerances for intelligence

error; and c) varying requirements for sensitivity to change. These variables change according to both the level of analysis and the level of conflict. As one moves from the tactical to the strategic level of analysis, ambiguity increases. Also, since errors in tactical analysis are less consequential than strategic errors, the tolerance for error decreases. As conditions escalate from peace to war, tolerance for error increases because the possibility of surprise decreases and the threshold of acceptable risk rises. Similarly, as tensions increase, the need for intelligence to anticipate an increasing number of deviations from the norm (the rate of change) also increases. For example, at the strategic level of analysis in peacetime, we find high ambiguity, low tolerance for error, and low rate of change. Thus, the conservative approach of favoring concepts over conflicting reports should be favored. However, at the tactical level in peacetime, lower ambiguity and higher tolerances for error sustain a methodology of favoring tactical reports over established concepts.

The operational level of intelligence occupies a middle and overlapping ground between strategic and tactical assessment. At this level, intelligence is provided to a regional military commander with both strategic and tactical concerns. Intelligence officers must blend ambiguous, intention-based strategic concepts with less ambiguous, capabilities-based tactical indications. Depending on the

level of tensions, three models can be employed:

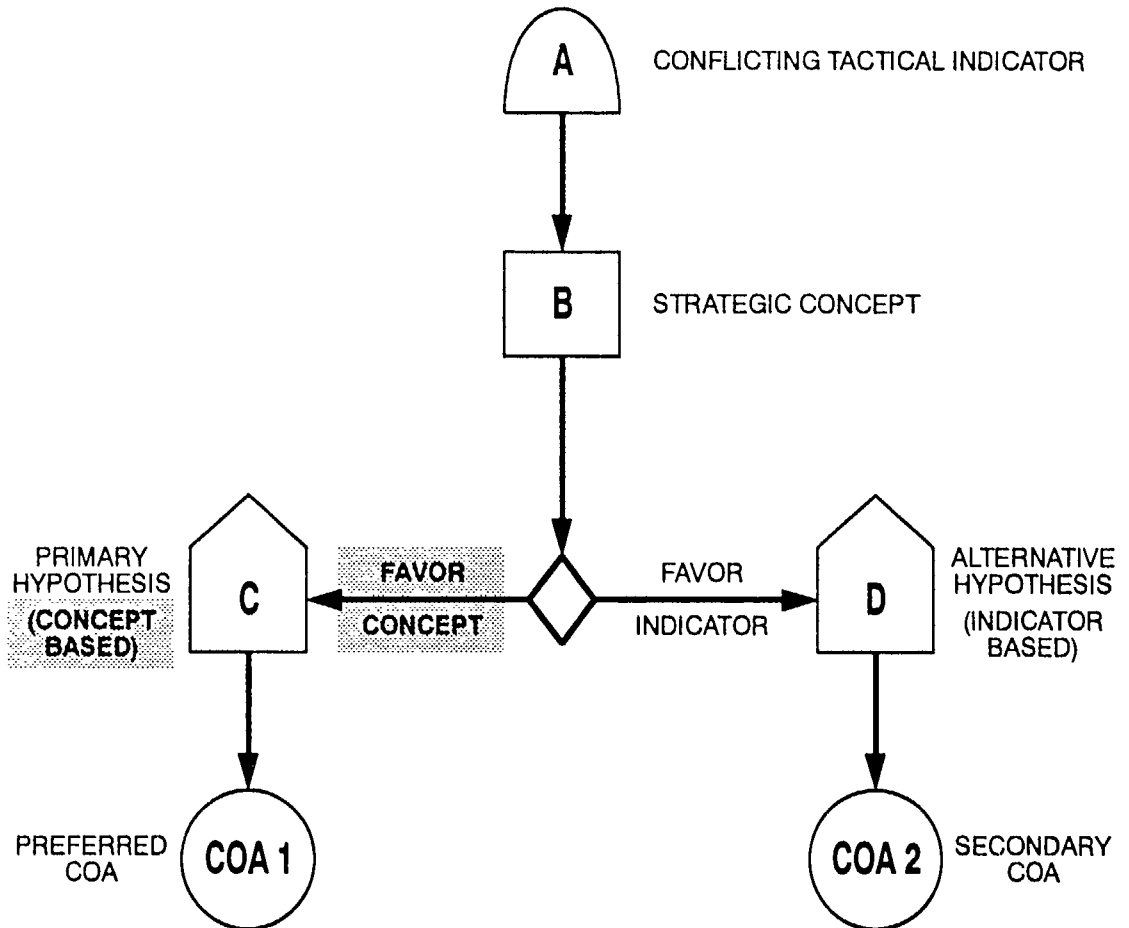
Peacetime: Low Tolerance for Error, Low Rate of Change.

(See Figure 1). Here, conservative analysis is featured. There is low tolerance for error due to lack of preparedness, on the one hand, and to the risk of desensitizing warning on the other. Relations with Country XYZ are static, so there is no need to risk higher levels of error for extra sensitivity to change. As long as tactical indications accord with strategic concepts, there is no requirement to generate alternatives. However, in resolving potential conflicts, strategic concepts should be favored over tactical indicators until the weight of evidence convinces "the community" that change is necessary. An indication that XYZ's submarines departed port would be weighed against the strategic concept that it would not attack without first mining XYZ Strait. Favoring the concept would produce the primary hypothesis that an exercise is underway. The tactical indicator would generate the alternate hypotheses that XYZ is preparing for war.

Heightened Tensions: Medium Tolerance for Error, Medium Rate of Change. (See Figure 2). During crises, intelligence agencies should accept potentially higher levels of error for increased sensitivity to change. In this case, the indication that XYZ's submarines had departed port should be favored over the concept in generating the primary hypothesis and the preferred courses of action. The concept-based interpretation

Figure 1

OPERATIONAL INTELLIGENCE DECISION-MAKING:
PEACETIME (LOW TOLERANCE FOR ERROR, LOW RATE OF CHANGE)



A. ALL COUNTRY XYZs SUBMARINES DEPARTED PORT

B. XYZ WILL NOT ATTACK WITHOUT MINING XYZ STRAIT

C. XYZ CONDUCTING EXERCISE

D. XYZ PREPARING FOR WAR

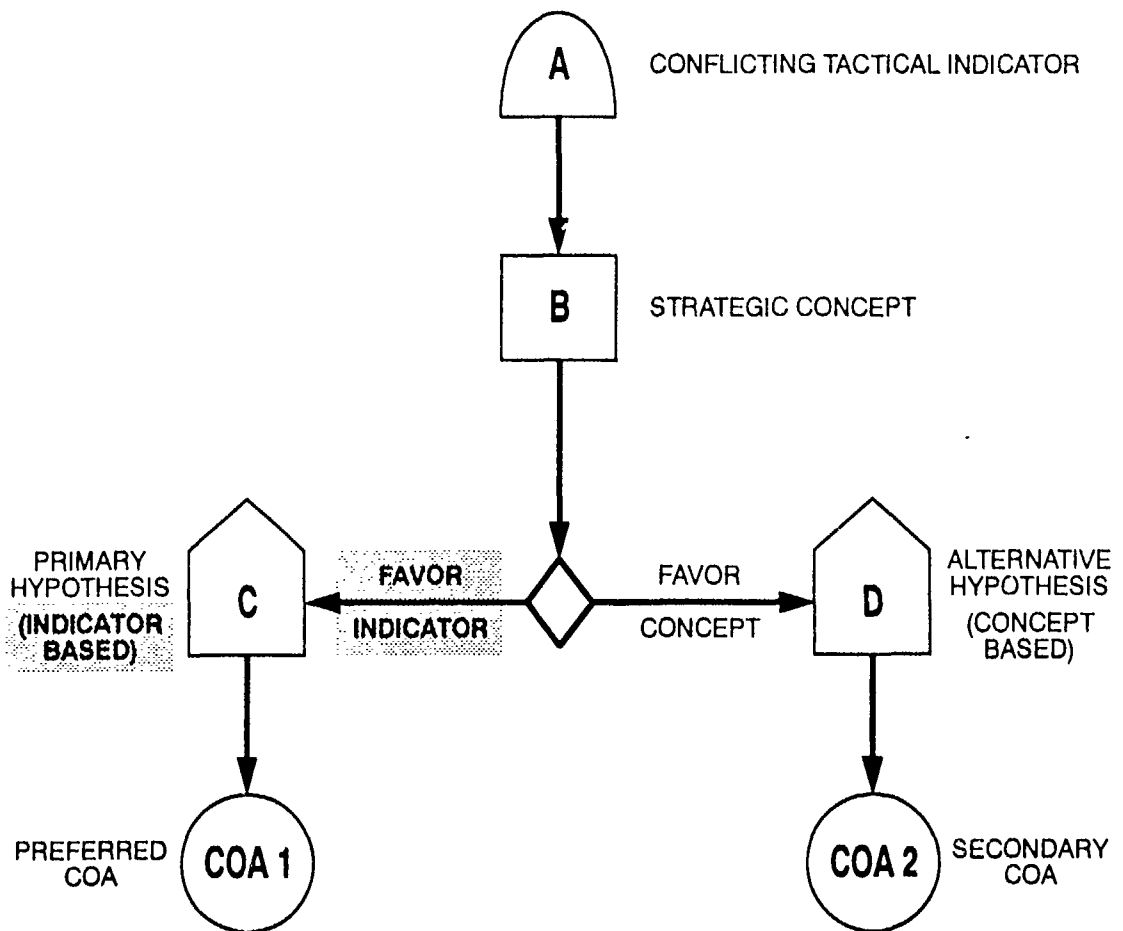
COA 1: INCREASE EXERCISE MONITORING

COA 2: INCREASE ALERT LEVEL / CRISIS MONITORING

Figure 2

OPERATIONAL INTELLIGENCE DECISION-MAKING:

HEIGHTENED TENSIONS (MEDIUM TOLERANCE FOR ERROR, MEDIUM RATE OF CHANCE)



A. ALL COUNTRY XYZs SUBMARINES DEPARTED PORT

B. XYZ WILL NOT ATTACK WITHOUT MINING XYZ STRAIT

C. XYZ PREPARING FOR WAR

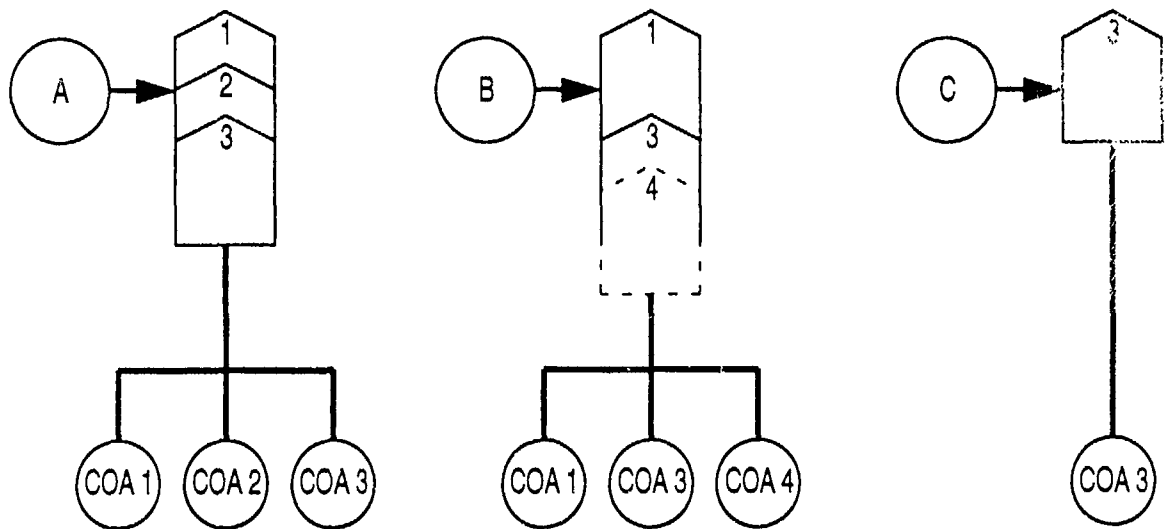
D. XYZ CONDUCTING EXERCISE

COA 1: INCREASE ALERT LEVEL / CRISIS MONITORING

COA 2: INCREASE EXERCISE MONITORING

Figure 3

OPERATIONAL INTELLIGENCE DECISION-MAKING:
WARTIME (HIGH TOLERANCE FOR ERROR, HIGH RATE OF CHANGE)



- A. FIRST TACTICAL INDICATOR GENERATES FIRST SET OF HYPOTHESES.
- B. SECOND TACTICAL INDICATOR REFINES HYPOTHESES.
- C. THIRD TACTICAL INDICATOR SOLIDIFIES WORKING HYPOTHESES/COA.

of the indicator would form the alternate hypothesis and serve as the basis for secondary and tertiary courses of action.

Wartime: High Tolerance for Error, High Rate of Change.

(See Figure 3). During war, strategic warning concepts are discarded. Higher levels of acceptable risk and friction create higher rates of change and uncertainty. Here, analysts might employ the free hypothesis method. The first tactical indication in any analytic problem serves as the basis for intuitive development of several hypotheses and courses of action. The second indicator is used to refute or support the original hypotheses, or to create new hypotheses. Subsequent indicators are used to refine the hunches until a single hypothesis emerges as most likely.

If these models demonstrate that successful assessment depends on dynamic adaptation to changing circumstances, it remains to ask "how?" How do analysts and decision-makers loosen the grip of biases, preconception, and ambiguity? Only one answer is apparent from this study. They must take one step back from the intelligence problem in the moments between perception and decision to exercise several qualities of critical judgment.

The Matter of Judgment

In the days before the Cuban Missile Crisis, the only influential member of the national security establishment who correctly estimated that the Soviet Union was sending missiles

to Cuba was the Director of CIA, John McCone. In the aftermath of the crisis, during one of many post-mortems, McCone admitted that his estimate was not based on hard evidence but was "wholly a question of judgment."¹⁵ He was referring to a moment of critical reasoning in which values other than concepts and observations were weighed.

Solomon Encel, a philosopher of science, suggests that the art of prediction depends on value judgments, thus "...forecasters must choose the values that their research will serve."¹⁶ As forecasters, intelligence officers must also choose values. These must be the values on which critical judgment is based. A review of the literature of intelligence failure suggests what those values might be.

The first is full awareness--awareness of the biases, rigid concepts, and ambiguity that are inherent in the field of intelligence.¹⁷ In a series of lectures at Harvard University at the end of the last century, William James asked if understanding our faults could provide insight:

We have unquestionably a great cloud bank of ancestral blindness weighing down upon us, only transiently riven by fitful revelations of the truth. It is vain to hope for this state of things to alter much....But, if we cannot gain much positive insight into one another, cannot we at least use our sense of our own blindness to make us more cautious in going over the dark places?¹⁸

Roberta Wohlstetter referred to this sense of our own blindness in her analysis of intelligence mistakes and misperceptions at Pearl Harbor. She contends that

intelligence failures are inevitable, but improvement is possible if we "...tailor our responses to the ambiguities and dangers that remain."¹⁹ Likewise, Robert Jervis concludes that "if decision-makers were more aware of common perceptual errors, they might be able to avoid them."²⁰ And, Richard Betts suggests that intelligence officers anticipate perceptual barriers to understanding.²¹ Anticipation requires awareness, or a sense of our own blindness.

A second element of critical judgment in intelligence is explicitness. Intelligence officers must be explicit about their assumptions. They must also be explicit with their bosses. Encel provides the following advice: When faced with complex and ambiguous problems, in circumstances which require decisiveness at the risk of employing over-simplified and naive concepts or assumptions, then "...a middle course is indicated which consists in making explicit the logic of procedure--even where it is tenuous--in the expectation that periodic stocktaking as more concrete work proceeds will reveal where positions need to be changed, where some dilemmas can be resolved, and where new ones arise."²² Thus, Wohlstetter suggests that we might reduce the risks of "slow Pearl Harbors" by "...making more explicit...the framework of assumptions into which we must fit any new observations."²³ Richard Betts puts it this way: "Improvement would flow from mechanisms that force decision-makers to make explicit rather than unconscious choices, to exercise judgment rather than

engage in automatic perception...."²⁴

The third quality of good judgment in intelligence is deliberate analytic self-consciousness.²⁵ This is the ability to step back from the analytic problem, even in the face of time pressures, and examine one's beliefs and assumptions, look for supporting beliefs that are not logically linked, ask what is being taken for granted, and test alternatives.²⁶ This is "the constant close look."²⁷ It is the habit of asking the right analytic questions.²⁸ As Donald McLachlan learned from his wartime experiences, "Intelligence judgments must be under continuous review and revision."²⁹

Intuition supported by knowledge is the fourth requirement. A story about the "Wizard of Menlo Park," Charles Steinmetz, illustrates this requirement.³⁰ The recently retired Steinmetz was called back to General Electric to find the cause of a breakdown in a complex system of machinery. Steinmetz walked around the machinery and, after a while, took out a piece of chalk and marked an "X" on one of the machines. The GE people disassembled the machine and discovered that the defect was precisely where Steinmetz's chalkmark indicated. When GE received a bill from Steinmetz for \$10,000, they protested and asked him for an itemization. He sent them this:

Making one chalk mark.....\$0,001
Knowing where to place it.....\$9,999

As Steinmetz knew, good judgment has value, and intuition is

sharpened by deep practical knowledge. Knowing where to put the "X" is also a large part of the intelligence officer's job. In intelligence, keen intuition must be wedded to long experience and thorough knowledge. As Walter Laqueur concludes:

Intelligence collectors and evaluators alike have to rely on the experience gained and general competence. They need imagination and instinct, or Fingerspitzengefuehl, to quote the favorite term of a former DCI. They have to be able to listen with the "third ear," to borrow a term coined by a psychoanalyst, and to the still, "small voice" mentioned in the Bible. These observations may not be startling or original. But they do have a decisive advantage over all other prescriptions: they are the only known way to minimize the risk of failure.³¹

The fifth and most fundamental element of good judgment in intelligence is honesty and integrity. In his study of politics and intelligence, Michael Handel concludes that "the most effective antidote for politicization of the intelligence community is the integrity, character, and personal and professional ethics of each member of the community."³² Similarly, speaking recently to CIA analysts, Robert Gates said that "the first line of defense against politicization and analytic distortions is our own personal integrity."³³ The intelligence officer must be an honest broker of information if good judgment is to be exercised and if right decisions (even if incorrect) are to be made. In so doing, intelligence officers must resist strong temptations to be silent, to be too subtle, or to tell the boss what he wants to

hear. McLachlan believes that intelligence should be "the voice of conscience on a staff" and that "the upright and outspoken intelligence officer is crucially important in that role."³⁴ Hughes calls this "the power to speak truth to power." However, he notes that this power is a corollary of the power of the decision-maker to listen for the truth.³⁵ In other words, honest brokers need honest recipients. Avi Shlaim concludes his study of intelligence misperceptions during the 1973 Arab-Israeli crisis by saying that "...in the end, it just comes down to the meeting between two honest, communicative men."³⁶ Only in this way is it possible to consider the true value of the evidence rather than the misleading probabilities of the bottom line.³⁷

If these elements of good judgment offer a way to improve the accuracy of intelligence assessment, how can they be employed in the real world? How can good judgment in intelligence be practiced? Are there ways to think about intelligence problems that increase awareness, deliberateness, and self-consciousness; that encourage explicit beliefs and assumptions; and that foster honesty and integrity in intelligence officers and decision-makers?

These questions have also been asked in the field of medicine. The analogy offers some insights for intelligence.³⁸ (An extended analogy may provide additional insights that are outside the scope of this paper). Clinical physicians, like intelligence officers, predict in uncertain

circumstances. Diseases are often hidden. As Walter Laqueur notes, "The doctor and the analyst have to collect and evaluate evidence about phenomena frequently not amenable to direct observation. This is done on the basis of indications, signs, and symptoms."³⁹ Also, decisions must be made quickly, with critical consequences for error.

In the first half of this century, medicine lost its art. Statistical methods and computer models replaced clinical intuition. This is not unlike the scientific movement in intelligence that began in the 1950's. However, medicine rediscovered the importance of human judgment in clinical diagnosis. In selecting and training clinicians, medicine has lately been guided by the following advice:

The truth appears to be that what the user of a practical art needs is less the strict and limited instrument of scientific method than what may be called a soundly cultivated judgment. This requirement is more difficult to specify and much more difficult to secure. Apart from inborn capacity, it seems to depend on familiarity with the material of the art, otherwise on experience and on a broad and sound general culture which includes a proper awareness of sciences but is by no means limited to it.⁴⁰

Intelligence also requires soundly cultivated judgment. However, the intelligence community continues to seek scientific solutions to its problems. A better route is indicated in one physician's definition of critical judgment:

It lies not in formidable apparatus nor the myriads of available texts, nor in overflowing libraries, but in the small voice that I call critical

judgment. This voice asks the important questions: "Do you see a pattern clearly? How good is your evidence? How sound is your reasoning? Can you support your inferences with the means at your disposal? What are the alternatives? What hangs on your decision?"⁴¹

Thus, Laqueur concludes, "The student of intelligence can do little but answer 'amen.' For the truth...is not in the impressive apparatus, the ingenious photographic equipment, and the amazing electronic contraptions...but in the small voice of critical judgment, not easy to describe, more difficult to acquire, yet absolutely essential in reaching a correct decision."⁴²

Is there a way to encourage and mobilize the practice of critical judgment on a broad front? The uneven qualities of the people who collect, analyze, produce, and decide ensures that different degrees of judgment will be exercised throughout the intelligence cycle.⁴³ Also, intelligence agencies pride themselves on the diversity of the men and women engaged in this multi-faceted work. However, the potential benefits of even discrete improvements in the quality and accuracy of analysis and decision warrant at least the following courses of action.

First, military and civilian decision-makers need training in the uses and limits of intelligence.⁴⁴ The military services have made progress in training commanders to use operational and strategic intelligence assets. However, they should also understand the limits of intelligence.

Conventional intelligence training in war colleges, prospective commanding officer schools, advanced warfare courses, and predeployment programs should be supplemented with a seminar on the dimensions of analysis and decision.

Michael Handel suggests that "...the selection of intelligence officers should be based not only on their professional qualifications but also on their strength of character and ethical standards."⁴⁵ However, testing for judgment, character, and honesty is difficult and unreliable. One promising line of inquiry is to survey medical schools and teaching hospitals for the non-academic standards they use in selecting interns for residencies in clinical medicine. What practical tests do these residency programs use in determining which physicians are more likely to exercise good critical judgment in diagnoses and which are likely to be better off in less intuitive medical disciplines?

A less arbitrary course is to focus on the education of already selected intelligence officers who have been assigned to analytic billets. Training for these officers should include a close examination of the thought processes involved in analysis; a study of the interface between intelligence and policy, operations, and plans interface; and lessons in analytic core values.

Finally, intelligence officers need an ethic. However, but it must be an ethic that can be practiced in the real world, during times of both calm and crisis. Robert Gates

recently called on intelligence officers at CIA to recommit themselves "...to a solid professional ethic."⁴⁶ Many have sounded this call but very little has been done to formulate practical ethical standards. One CIA analyst recently took note of "...our sustained reluctance to formalize the ethical minimums which should govern our business," concluding that "although many of us have discussed the ethics of our profession, little has been done organizationally to capture these thoughts."⁴⁷

The problem is that many codes of conduct do not hold up under pressure. As the ethicist Wayne Leys puts it, "Ethics will not be a successful guide in action, unless its insights can be mobilized quickly under exciting and distracting circumstances."⁴⁸ The solution is to view ethics in intelligence as an exacting way of thinking and judging, not as a standard of behavior. In this way, qualities of critical judgment become "habits of thought adapted to the purpose" of analysis and decision.⁴⁹

At a recent conference on ethics sponsored by the Naval War College, Alberto Coll, then Deputy Assistant Secretary of Defense for Special Operations and Low-Intensity Conflict, asked this same question about mobilizing ethical thought in the real world of government.⁵⁰ He asked: "How do we think ethically? How does ethics become more than just a set of rules? How does it become part of the way in which we think about and approach problems of policy?" He suggests that we

view thinking ethically not as a standard of performance but as a series of habits, skills, and patterns of character that can be developed. He draws his guidance from the "practical wisdom" Aristotle and Thomas Aquinas.

The guidelines are worth outlining here, as they offer insights into what might serve as core values in analysis. First, deliberateness, or the capacity to deliberate and reflect. Second, self-control, or the capacity to avoid passionate attachments, to recognize and then go a step beyond our biases. Next, sympathetic understanding, or the ability to see the world as others do. Also, knowledge of particulars, knowing the substance of one's job. Fifth, experience, or understanding what one can and cannot do given human nature and the constraints of the political process. Sixth, memory and the capacity to learn from the mistakes of others. Also, intuitive understanding, or the ability to grasp the moral essence of a problem without having to reason through its whole length. Next, teachableness, or the willingness to learn from others. Another is acumen, or the ability to make right decisions quickly and under pressure. Also, provision, or the ability to accurately calculate the consequences of one's decisions. Finally, circumspection, or understanding the particular context of a decision.

These characteristics of ethical thinking complement the qualities of critical judgment outlined previously. They lead us to ask the right questions. Viewed as a system for asking

the right questions, ethics can serve a practical purpose in the real world of intelligence. As habits of thought, they can be mobilized during crises. Leys summarizes this point:

Ethics, as a discipline of questions, should unparalyze the mind at the moment of action. It suggests the unremembered or unperceived angles that may need investigation. If there is a logic of practical judgment, it is a logic of questions. It does not supply factual information, but it is a reminder of the kind of facts that may need investigation.⁵¹

A discipline of questions--a reminder about the right questions to ask--is precisely what is needed in intelligence analysis and decision-making. Thinking ethically about intelligence problems, examining once unremembered or unperceived angles, exercising the qualities of critical judgment as habits of thought--these offer the best hope for improving the quality and accuracy of intelligence assessment.

NOTES

1. David Hume, "An Enquiry Concerning Human Understanding," quoted in George Seldes, The Great Quotations, 2nd ed., (New York: Pocket Books, 1968), p. 329.
2. Walter Laqueur, A World of Secrets: The Uses and Limits of Intelligence (New York: Basic Books, 1985), p. 279.
3. This thought is from Isaac Ben-Israel, "Philosophy and Methodology of Intelligence: The Logic of the Estimative Process," Intelligence and National Security, Summer 1989, pp. 692-693.
4. Laqueur, A World of Secrets, p. 277. Laqueur was referring to a speech on bias by the English historian, Trevelyn.
5. Robert Jervis, Perception and Misperception in International Politics (Princeton: Princeton University Press, 1976), p. 180.
6. Avi Shlaim, "Failures in National Intelligence Estimates: The Case of the Yom Kippur War," World Politics, April 1976, pp. 358-359.
7. This and the following quotation are from Shlaim, "Failures in National Intelligence Estimates," pp. 364-365.
8. Fred Greene, "The Intelligence Arm: The Cuban Missile Crisis," in Roger Hilsman and Robert Good, Foreign Policy in the Sixties (Baltimore: Johns Hopkins University Press, 1965), p. 131.
9. Thomas L. Hughes, The Fate of Facts in a World of Men: Foreign Policy and Intelligence-Making (New York: Foreign Policy Association, December 1976, no. 233), pp. 49-50.
10. See Thomas Kuhn, The Structure of Scientific Revolutions, 2nd ed., (Chicago: University of Chicago Press, 1970); Michael Polanyi, "The Unaccountable Element in Science," in Marjorie Greene, ed., Knowing and Being. Essays by Michael Polanyi (London: Routledge and Kegan Paul, 1965); Frederick Suppe, ed., The Structure of Scientific Theories (Urbana IL: University of Illinois Press, 1974); Romano Harre', The Principles of Scientific Thinking (Chicago: University of Chicago Press, 1970); and Israel Scheffler, The Anatomy of Inquiry (New York: Alfred A. Knopf, 1963). Similar philosophical discussions are applied to intelligence methodology in Ben-Israel, "Philosophy and Methodology of Intelligence," pp. 660-716.
11. See Laqueur, World of Secrets, pp. 264-266.

12. See Jack Davis, "Combatting Mindset," Studies in Intelligence, Winter 1991, p. 14.
13. Ben-Israel, "Philosophy and Methodology of Intelligence," pp. 708-709.
14. Abraham Ben-Zvi, "Hindsight and Foresight: A Conceptual Framework for the Analysis of Surprise Attacks," World Politics, April 1976, p. 395.
15. Hughes, The Fate of Facts, p. 44.
16. Solomon Encel et. al., The Art of Anticipation (New York: Pica Press, 1976), p. 14.
17. See the conclusion drawn by MGEN. Shlomo Gazit, "Intelligence Estimates and the Decision-Maker," in Michael I. Handel, ed., Leaders and Intelligence (London: F. Cass, 1989), p. 270.
18. William James, Talks to Teachers on Psychology and to Students on Some of Life's Ideals (New York: Holt, 1899), p. 268.
19. Roberta Wohlstetter, Cuba and Pearl Harbor: Hindsight and Foresight, RM-4328-ISA, (Santa Monica: Rand, 1965), pp. 39-41. Also see Roberta Wohlstetter, Pearl Harbor: Warning and Decision (Stanford: Stanford University Press, 1962).
20. Jervis, Perception and Misperception, p. 409.
21. Richard K. Betts, "Analysis, War, and Decision: Why Intelligence Failures Are Inevitable," World Politics, October 1978, p. 84.
22. Encel et. al., The Art of Anticipation, p. vii. Italics added.
23. Wohlstetter, Hindsight and Foresight, p. 41. The term "slow Pearl Harbors" is from Roberta Wohlstetter, "Slow Pearl Harbors and the Pleasures of Self-Deception," in Robert L. Pfaltzgraff et. al., eds., Intelligence Policy and National Security (Hamden CT: Archon Books, 1981).
24. Betts, "Analysis, War, and Decision," p. 83. Italics added.
25. Jervis uses the term "self-conscious judgment." See Jervis, Perception and Misperception, p. 409.
26. Shlaim, "Failures of National Intelligence Estimates," p. 372; and Jervis, Perception and Misperception, pp. 410-414.

27. Martha L. Cottam, Foreign Policy Decision Making: The Influence of Cognition (Boulder CO: Westview Press, 1986), p. 126. Cottam quotes Jerome S. Bruner, "On Perceptual Readiness," in Jeremy M. Anglin and Jerome S. Bruner, eds., Beyond the Information Given: Studies in the Psychology of Knowing (New York: W.W. Norton, 1973), p. 29.

28. Jervis, Perception and Misperception, p. 410.

29. Donald McLachlan, Room 39: A Study in Naval Intelligence (New York: Athenum, 1968), p. 351.

30. From H. Lawrence Garrett, "COMSPAWARSYSCOM Change of Command," Speech, Washington Navy Yard, Washington, DC: 23 June 1988.

31. Laqueur, A World of Secrets, p. 292.

32. Michael I. Handel, "The Politics of Intelligence," Intelligence and National Security, October 1987, p. 23.

33. Robert M. Gates, "Guarding Against Politicization," Studies in Intelligence, Winter 1991, p. 3.

34. McLachlan, Room 39, p. 343.

35. Thomas L. Hughes, "The Power to Speak and the Power to Listen," in Thomas M. Franck and Edward Weisband, eds., Secrecy and Foreign Policy (New York: Oxford University Press, 1974), p. 14.

36. Shlaim, "Failures of National Intelligence Estimates," p. 380.

37. That "differences between decision-makers and intelligence men should not center on the use of such terms as 'high' or 'low' probability, but on the nature and value of the estimate" is from Gazit, "Intelligence Estimates and the Decision-Maker," p. 281.

38. The following analogy between intelligence and medicine is entirely drawn from Walter Laqueur, "The Question of Judgment: Intelligence and Medicine," Journal of Contemporary History, October 1983, pp. 533-543.

39. Ibid., pp. 534-535.

40. Ibid., p. 538. Laqueur quotes Wilfred Trotter, Collected Papers (Oxford: Oxford University Press, 1941), p. 159.

41. Ibid., p. 545. Laqueur quotes Lester S. King, Medical Thinking. A Historical Preface (Princeton: Princeton University Press, 1982), p. 309.

42. Ibid.
43. See Hughes, The Fate of Facts, p. 60.
44. See Michael I. Handel, "Leaders and Intelligence," in Handel, ed., Leaders and Intelligence, p. 15.
45. Michael I. Handel, "Intelligence and Military Operations," in Michael I. Handel, ed., Intelligence and Military Operations (London: F. Cass, 1990), p. 31.
46. Gates, "Guarding Against Politicization," p. 5.
47. Paul G. Ericson, "The Need for Ethical Norms," Studies in Intelligence, Spring 1992, pp. 11-12.
48. Wayne Albert Risser Leys, Ethics for Policy Decisions: The Art of Asking Deliberative Questions (New York: Prentice-Hall, 1952), p. 4.
49. Aurel Kolnai, Ethics, Value, and Reality: Selected Papers of Aurel Kolnai (Indianapolis: Hackett Publishing, 1978), p. 27.
50. The following outline of thinking ethically is extracted from Alberto Coll, "What Does It Mean To Think Ethically," Lecture, U.S. Naval War College Ethics Conference, 16 November 1992.
51. Leys, Ethics for Policy Decisions, p. 11.

CHAPTER V

CONCLUSION

The conventional view of intelligence as a science has misdirected efforts to improve the accuracy and quality of analysis and decision. Promotion of scientific values in intelligence isolates the community from the political and operational arts which give it meaning. It encourages analysts to focus on quantifiable capabilities instead of equally important intentions. Scientific intelligence reaches for objectivity instead of relevance, the truth instead of success, and cold logic instead of honest judgment.

A close examination of bias in intelligence reveals that it is inevitable. Our understanding of adversaries is colored by biases that are built into the collection, analysis, and reporting process. The inevitability of bias subverts scientific reforms. Calls for analytic objectivity and unbiased decision-making are not likely to produce measureable improvements in accuracy. Raw reporting is already too slanted. Improvements are more likely to be realized at higher levels of analysis.

The next level of analysis, where raw reports are mediated by intelligence concepts, is also problematic. Since concepts are developed from previous reports, they contain an inherent margin of error. Nonetheless, analysts must use concepts to manage and interpret large volumes of equivocal

information. As analysts assimilate data to pre-existing beliefs and expectations, critical intelligence may be overlooked or distorted. Intelligence concepts are particularly persistent because inherent ambiguity permits several interpretations. Misperception is aggravated during crises, when analysts and decision-makers increasingly rely on entrenched concepts to cope with rising ambiguity and pressures for decisive action.

The interrelated problems of inevitable bias, necessary preconception, and inherent ambiguity have checked all scientific and bureaucratic efforts to improve the accuracy of assessment. Across-the-board reforms are difficult because intelligence is used differently in warning, operational evaluation, and defense planning. Quantification imposes too many artificialities for successful assessment of real situations. Organizational solutions involve significant trade-offs between alternate viewpoints and indecision, consensus and compromise, political bias and irrelevance.

Efforts to eliminate bias and preconception dissipate energies that could be used more productively. If intelligence failures are inevitable, part of both the human and modern condition, efforts should be directed toward improving "the batting average" of prediction. Instead of focusing on inherent bias and preconception, efforts should concentrate on the controllable moments of thought and judgment that precede decision. Instead of calls for truth

and objectivity, intelligence officers should be encouraged to use the "right" biases and preconceptions in changing circumstances.

Intelligence concepts that are right on one level of analysis may not be appropriate on another level. Concepts which are useful during peacetime may be inadequate during crises. Tactical indications may be favored over strategic concepts in one situation but not another. At the operational level, where tactical intelligence is commonly integrated with strategic concepts, the persistence of concepts should at least be a function of situational tolerances for error and varying requirements for sensitivity to change.

Conditioning intelligence officers to adapt concepts to changing circumstances is not a matter of psychology but a matter of judgment. Five essential qualities of critical judgment in intelligence can be delineated. They are: a) full awareness of the limits of analysis; b) explicitness concerning assumptions and procedures; c) deliberate analytic self-consciousness; d) intuition supported by knowledge; and e) honesty and integrity in both analysis and the relationship between intelligence advisors and decision-makers.

These qualities must become habits of thought. Qualities of good judgment can be encouraged in selecting and training intelligence officers. They can also be promoted in education programs for prospective users of intelligence. The parallel with clinical diagnosis suggests that there may be selection

criteria that increase the chances of finding officers with basic qualities of critical judgment. These qualities should be developed through supplemental training in the limits of analysis, analytic thought, intelligence-policy relations, and "analytic core values." Users of intelligence should be given a clear understanding of analytic strengths and weaknesses, as well as an appreciation of the critical need for honesty in weighing intelligence.

These qualities of critical judgment will remain empty values as long as the intelligence community lacks a solid professional ethic. This ethic must hold up under pressure in the real world. Thus, it must be an active ethic rather than a code of conduct. It must be an ethical way of thinking that forces analysts and decision-makers to ask the right questions at the right time.

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